National League for Nursing

NLN TOOLKIT:
ARTIFICIAL INTELLIGENCE (AI) IN NURSING EDUCATION

NLN Toolkit: Artificial Intelligence (AI) in Nursing Education

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Introduction

In September 2025, the NLN Board of Governors approved the NLN Vision Statement: *Artificial Intelligence in Nursing Education*. This toolkit was developed as a guide to assist leadership in nursing program, nursing faculty, and clinical practice partners to implement the recommendations of the vision statement.

In addition, this toolkit can support nursing programs as they respond to the rapid integration of artificial intelligence (AI) across healthcare, nursing practice, and education. AI is now embedded in clinical decision support, device training, predictive analytics, documentation, patient monitoring, staffing, academic operations, and educational tools. This shift requires nurse educators to prepare graduates who can use AI responsibly, evaluate AI-generated outputs, recognize bias and limitations, protect privacy, and preserve clinical judgment and patient-centered care. Grounded in the NLN Vision Statement: *Artificial Intelligence in Nursing Education* and the NLN values of caring, integrity, diversity and inclusion, and excellence, this toolkit translates broad AI recommendations into practical strategies for nursing education.

This toolkit is designed to be used as a flexible implementation guide rather than a one-size-fits-all mandate. Nursing programs may use it to assess current readiness, build shared AI terminology, guide faculty development, support curriculum integration, select and evaluate AI-assisted tools, strengthen ethical and governance practices, and develop measurable AI literacy and competency outcomes for students and educators. Programs are encouraged to start where they are, use a phased approach, adapt the examples and rubrics to their program level and resources, and revisit the toolkit regularly as AI technologies, policies, and clinical expectations continue to evolve.

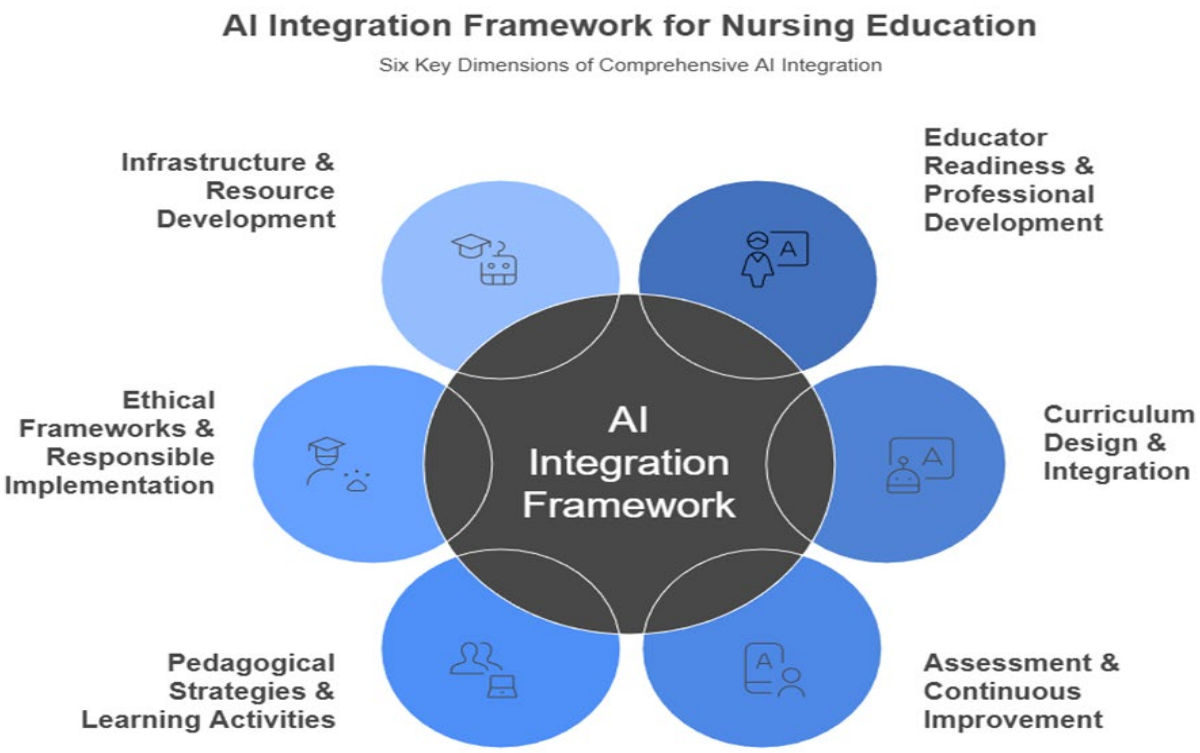


Figure 1. AI Integration Framework for Nursing Education

The toolkit is divided into three primary sections for distinct stakeholders: (1) leadership in nursing programs (deans, directors, and chairs), (2) faculty, and (3) collaboration with clinical practice partners. Within each section, actionable recommendations are paired with strategies and illustrated by 23 total exemplars that provide real-world models, sample charters, prompts, rubrics, and templates educators can adapt directly. The document closes with practical reference material, including an AI literacy assessment rubric, a supplemental resource list (standards, frameworks, professional development, policy examples, and AI platforms), and a list of additional useful articles, making it usable as both a strategic planning document and a hands-on classroom resource. As you progress through this toolkit, you can contact the NLN's Consultants and Speakers Bureau for a consultant and/or subject matter expert to aide your program's AI transformation.

Recommendations for Leadership in Nursing Programs (Deans, Directors, and Chairs)

The Leadership section establishes the institutional foundation for AI integration, offering seven recommendations spanning AI governance, infrastructure investment, faculty development, strategic planning and budgeting, a culture of innovation, and collaboration with health systems and industry. The section is illustrated by ten exemplars, including a governance committee charter, adaptive-learning and simulation systems, and academic-practice partnership models.

Recommendation L1: Identify and Engage AI Expertise to Support Toolkit Implementation

Effective implementation of this toolkit requires more than general interest in AI; it requires informed leadership, faculty development, governance support, and sustained follow-through. Nursing programs are encouraged to first leverage internal expertise. Many programs already have faculty (e.g., informaticists, simulation educators, emerging AI champion, data scientist, engineer) who can lead this work through a dedicated role or internal partnership. Programs should identify, engage, support, or hire for that capacity first. Where internal expertise is limited, programs should also engage an external consultant with expertise in AI, nursing education, curriculum design, ethics, and institutional implementation. A qualified consultant can help programs interpret the toolkit recommendations, assess organizational readiness, facilitate faculty development, guide the development of responsible AI policies, support curriculum mapping, and establish realistic implementation priorities. This support is especially important because the toolkit emphasizes phased integration, educator readiness, ethical implementation, infrastructure planning, assessment, and continuous improvement. An external consultant can help institutions avoid fragmented or inconsistent AI adoption. AI integration affects teaching, learning, clinical preparation, assessment, academic integrity, privacy, bias, accreditation, and institutional operations. Without expert guidance, programs may adopt tools without adequate guardrails, overlook equity and privacy concerns, or fail to align AI use with learning outcomes and clinical expectations.

Strategies

- Identify and leverage internal expertise by engaging faculty and staff with relevant experience in AI and connecting with colleagues at other institutional schools or programs and partner hospitals.
- Engage external expertise to build organizational capacity when internal AI expertise is limited. External consultation can provide the structure, accountability, and practical education needed to move from awareness to action. Programs may consider using the NLN Consultants & Speakers Bureau, which offers personalized consulting services and expert speakers that can assist with professional development, curriculum development, and strategic planning regarding AI integration.

Recommendation L2: Establish an AI Governance and Oversight Committee Within Nursing Schools

An AI leadership committee provides the structure, governance, and oversight needed to evaluate AI-assisted tools, establish policy, manage risk, and ensure alignment with professional, legal, and ethical standards. The committee should include nursing faculty, simulation specialists, informatics professionals, data scientists, ethicists, engineers, students, accessibility or disability-services representatives, IT/security leaders, and academic administrators.

Strategies

- Establish a process for evaluating and approving AI-assisted tools for academic, simulation, and clinical-learning use.
- Develop policies and procedures on AI disclosure, student use, academic integrity, data privacy, and responsible prompting.
- Create a reporting process for faculty, students, and researchers to flag AI errors, bias, safety concerns, or privacy issues.
- Conduct quarterly reviews of AI-assisted tools, policies, and learning outcomes, with additional reviews after major technology changes.

Leadership Exemplar L2.1: AI Governance Committee Charge

The AI Governance Committee is responsible for guiding the safe, ethical, and effective use of artificial intelligence across the nursing program. The committee reviews proposed AI, recommends policies for responsible use, monitors risks, and supports faculty and students in applying AI in ways that align with institutional standards, nursing values, privacy requirements, and professional accountability.

Sample Committee Charter Components

- Purpose: Ensure that AI-assisted tools used in the nursing program support teaching, learning, assessment, simulation, and administrative work while protecting privacy, equity, academic integrity, and human judgment.
- Membership: Dean or program director, faculty representative, simulation educator, clinical partner representative, informatics or IT specialist, instructional designer, student representative, engineer, ethicist or compliance officer, and accessibility/disability services representative.
- Meeting Schedule: Meet monthly during the first year of implementation and at least quarterly after policies and tool-review processes are established.
- Survey Use: Create a “check-in” survey to assess new AI being used by faculty or students quarterly. It can simply be embedded into departmental meeting agendas or scheduled emails with a link button to a one question survey: “Which new AI are you or students using and how?”
- Approval Workflow: Faculty submit proposed AI or use cases using a brief review form. The committee evaluates privacy, data security, accessibility, bias risk, educational purpose, cost, and alignment with learning outcomes before approval.
- Escalation Process: Concerns about inaccurate AI output, inappropriate student use, privacy exposure, bias, or unsafe recommendations are reported to the committee chair and reviewed within a defined timeline.

Sample Approved AI-assisted Tools List Fields

- Tool name
- Approved use and reasons

- Prohibited use and reasons
- Type of data allowed
- Privacy/security status
- Faculty or department contact
- Review date
- Renewal or reapproval date
- Human Review Requirement

Recommendation L3: Invest in AI Infrastructure Including Simulation, Adaptive Learning Systems, Personalized Student Support, and Analytics Platforms

AI infrastructure evaluates the reliability of AI systems by examining the sources of AI outputs, the risks associated with opaque "black box" processes, and the security of system inputs. Once vetted and approved, the goal of AI infrastructure is to support teaching, learning, assessment, advising, and simulation without widening inequities in access. Programs are encouraged to prioritize AI tools and platforms that provide robust security, integrate with their learning management system, support accessibility, include adequate faculty support, and have a sustainable funding model.

⚠ **Caution:** Before using any AI-assisted tool described in this toolkit, confirm that it has been approved by your institution. Do not enter student, patient, or other non-public institutional data — including names, identifiers, protected health information, or unpublished program data — into AI-assisted tools your university has not vetted and approved. Use only institutionally sanctioned, data-protected platforms, and follow your institution's data-governance, academic-integrity, the Family Educational Rights and Privacy Act (FERPA), and Health Insurance Portability and Accountability Act (HIPAA) requirements. When in doubt, de-identify information or consult your AI governance committee before proceeding.

Strategies

- Prioritize secure, institutionally approved AI platforms before encouraging open consumer tools.

- Plan for AI-enhanced simulation tools that can generate, adapt, and evaluate realistic clinical scenarios.
- Use learning analytics to inform educational decision-making while protecting student privacy and avoiding punitive use of predictive data.
- Allocate resources for sustainable AI integration by budgeting for technical support, faculty development, accessibility testing, and ongoing tool evaluation.
- Promote effective use of AI as a learning assistant by educating faculty and students on appropriate, ethical, and evidence-based applications.

Leadership Exemplar L3.1: AI-Powered Adaptive Learning Platforms and Simulation Systems

The AI Teaching Assistant System (AI-TAS)

A study by Kowitlawakul et al. (2024) outlines the use of a **Teaching Assistant System (AI-TAS)**.

- **Function:** The AI-TAS was deployed in a nursing leadership and management module. It allowed students to interact with the system to inquire about course content (e.g., conflict management, time management, problem-solving) and receive tailored support.
- **Adaptive Nature:** The system served as a "personalized tutor," providing revision support and addressing specific clinical or theoretical questions, thereby promoting an individualized learning experience.
- **Outcome:** Students rated the system highly for user-friendliness and ease of use, noting that it helped them learn quickly and confidently. However, the study also outlined limitations, noting that reliance on the system might lack depth compared to human tutoring and highlighting the need for continued human oversight.

Guidance for Implementing Adaptive Learning Platforms

Specific guidance for educators and institutions looking to deploy AI-powered adaptive learning tools to promote a shift from a one-size-fits-all approach to a learner-centered model that accelerates competency development while maintaining patient safety standards:

1. Mechanism of Action

Real-Time Adjustment: These platforms use algorithms to analyze student performance data in real-time. The system adjusts the curriculum to focus on areas where the student demonstrates weakness while accelerating through areas of strength.

Dynamic Simulation: In clinical training, adaptive platforms should aim to dynamically adjust simulation scenarios based on learner performance. For example, if a student misses a clinical cue, the AI might worsen the patient's condition or provide a hint, creating a personalized interactive training environment.

2. Pedagogical Integration

Identification of Gaps: Educators may use predictive analytics features of these platforms to identify trends in student performance and pinpoint specific skill deficiencies. This allows for targeted interventions for students at risk.

Scaffolding: The platforms should be used to support "scaffolding," where the AI acts as a tutor providing instant feedback and hints rather than just answers, aligning with constructivist learning theories.

3. Institutional Requirements

Infrastructure: Successful implementation requires substantial investment in technological infrastructure, including compatibility with Learning Management Systems (LMS), adequate bandwidth, and computing resources.

Equity and Access: To prevent widening the digital divide, institutions must ensure equitable access to these platforms. This may involve institutional licensing, so faculty, staff, and students are not forced to pay for premium adaptive features.

Additional Low-Cost Ways to Engage Students with AI

When a dedicated adaptive platform is not feasible, faculty can reproduce many personalized-learning benefits using widely available, low- or no-cost generative AI. Two approaches are detailed elsewhere in this toolkit — building a mini-application (see Faculty Exemplar 13) and advising students on AI-supported study strategies. Four additional approaches are outlined below. Each

requires faculty oversight to verify accuracy, address bias, and preserve students' independent clinical reasoning (Park et al., 2024).

Leadership Exemplar L3.2: Teaching Students to Create AI-Generated NCLEX-Style Practice Questions

Objective: Teach students how to use AI to create topic-specific NCLEX-style practice questions with rationales to support content review, clinical judgment, and test-taking preparation.

Student Prompt Example: "Generate five NCLEX-style questions on [topic, e.g., heart failure management] at the application level or higher. Include a mix of multiple-choice, select-all-that-apply, and prioritization questions. For each question, provide four answer options, identify the correct answer, and include a brief rationale explaining why each option is correct or incorrect."

Steps:

1. Select a secure or institution-approved AI platform, such as ChatGPT, Microsoft Copilot, or Gemini.
2. Replace the bracketed topic in the prompt with the assigned course content.
3. Generate the questions and review each item for clarity, level of difficulty, and alignment with course objectives.
4. Answer the questions before reading the rationales.
5. Compare the AI-generated rationales with course materials, textbooks, clinical guidelines, or faculty-approved resources.
6. Revise weak questions by asking the AI to increase the difficulty, focus on prioritization, or align the item with clinical judgment.
7. Submit selected questions and rationales for faculty review, peer discussion, or self-study.

Faculty Role: Faculty should teach students how to evaluate AI-generated questions for clinical accuracy, appropriate difficulty level, quality of rationales, and alignment with NCLEX-style clinical judgment expectations. AI-generated items often default to recall-level questions and may require revision to promote application, analysis, and prioritization (Cox et al., 2023).

⚠ **Caution:** AI-generated questions and rationales may include inaccurate clinical information, unclear wording, or low-level recall items. Students must verify all content using authoritative sources and should not rely on AI-generated questions as their only method of studying.

Leadership Exemplar L3.3: A No-Code Custom Chatbot Course Tutor

Objective: Provide students with a round-the-clock tutor focused on one course or skill, using faculty-approved content, tone, and boundaries.

Example Prompt: *"You are a friendly tutor for first-semester pharmacology students. Answer only with safe, evidence-based content. When a student asks a question, respond first with a guiding hint; reveal the full answer only after they attempt a response. Keep explanations concise and at the undergraduate level."*

Steps:

1. In a tool that supports custom assistants (e.g., ChatGPT "Create a GPT," Microsoft Copilot agents), start a new assistant.
2. Paste the builder prompt and, if the tool allows, upload faculty-approved notes or the syllabus.
3. Test with sample questions and refine the instructions until tone and accuracy are correct.
4. Share the link with students after confirming it complies with FERPA and institutional data policy.

Faculty role: Set boundaries so the tutor scaffolds rather than supplies answers, supporting — not replacing — students' critical thinking (Kowitlawakul et al., 2024).

Leadership Exemplar L3.4: Chatbot Virtual-Patient Role-Play

Objective: Let students rehearse therapeutic communication and clinical reasoning with a responsive "patient" in a safe, repeatable setting — using a scenario the faculty member has prepared and vetted in advance.

This example works in two phases: the faculty member first generates the full patient case and separates it into a hidden facilitator key and a short student briefing. Students then conduct the role-play using only the briefing, so the assessment findings and red flags stay something they must uncover rather than read in advance.

Phase 1 — Faculty: Build and Vet the Scenario

Faculty Prompt: *"Create a virtual patient case for a [level, e.g., second-semester medical-surgical] nursing student. The patient is a 68-year-old admitted with shortness of breath. Produce two separate outputs: (1) a Facilitator Key — the full chart (history, vital signs, medications), the key assessment findings the student should elicit, and three red-flag findings that should prompt escalation; and (2) a Student Briefing — two to three sentences giving only the patient's age, setting, and chief complaint, with no findings or red flags listed. Keep both clinically realistic."*

Steps:

1. Paste the faculty prompt into an institution-approved AI and generate the scenario.
2. Review and edit the output for clinical accuracy, correcting anything unrealistic or unsafe.
3. Separate the output: reserve the Facilitator Key (chart, expected findings, and red flags) for facilitator use only, and designate the short Student Briefing as the sole student-facing component.

Phase 2 — Students: Conduct the Role-Play

Facilitator Setup Prompt: *"You are a virtual patient. The complete case is below — use it as your hidden script. Stay in character and answer only as the patient. Reveal history and assessment findings only when the student asks a relevant question and never volunteer or list the red flags. When the student says they are finished, switch to the role of a nurse educator and provide feedback on their communication, the completeness of their questions, and any red flags they may have missed. [Faculty: paste the Facilitator Key here.]"*

Steps:

1. Faculty paste the Facilitator Setup Prompt (with the full case) into the chatbot to prime the patient; these stay hidden from students. Provide students only with the short Student Briefing.
2. Students conduct the assessment interview in real time; the AI responds in character and reveals findings only in response to their questions.
3. When finished, students ask the AI (now a nurse educator) for structured feedback, including which red flags they missed (e.g., SBAR quality, empathy, safety).
4. Reset and re-run with added complications drawn from the same case.

Faculty role: Because the AI improvises, always generate and review the case before student use, keep the facilitator key and its red flags out of the student briefing, and debrief afterward as you would following a manikin or standardized-patient simulation (Benfatah et al., 2024; Buchanan et al., 2021).

⚠ **Caution:** A chatbot "patient" can improvise inaccurate or unsafe clinical responses, and AI-generated debriefing does not replace expert, human-led debriefing; faculty must vet the case and lead the debrief themselves.

Leadership Exemplar L3.5: AI-Assisted Concept Mapping and Care-Plan Scaffolding

Objective: Guide students in organizing knowledge and reasoning through a care plan by using AI as a prompting partner rather than an answer key.

Example Prompt: *"I am building a concept map for a patient with sepsis. Ask me one guiding question at a time to help me connect pathophysiology, assessment findings, nursing diagnoses, and interventions. Do not give me the answers — prompt me to reason through each link."*

Steps:

1. Paste the prompt and answer each guiding question in your own words.
2. Build the concept map or care plan from your responses; then ask the AI to point out gaps.

3. Have the AI suggest a NANDA-style diagnosis only after you propose one, so you can compare.
4. Submit your own reasoning — not the AI text — for grading.

Faculty role: Because overreliance can erode clinical judgment, design the activity so students do the reasoning, and AI only scaffolds (Park et al., 2024).

Recommendation L4: Prioritize AI-Related Faculty Development, Including Interdisciplinary Partnerships With Data Scientists and Ethicists

Faculty development should move beyond single demonstrations and build sustained AI literacy, pedagogical application, and ethical reasoning. Programs should create tiered pathways that support beginners, early adopters, faculty champions, advanced users, as well as nursing educational researchers. Speakers and subject matter experts are available from NLN's Consultants and Speakers Bureau.

Faculty Development should include:

- Foundational training on AI terminology, strengths, limitations, privacy, academic integrity, and ethical use.
- Application-focused workshops on prompt design, assessment redesign, simulation scenario development, feedback generation, and AI-supported study strategies.
- Mentorship programs in which AI faculty champions guide colleagues, share vetted prompts, and support peer review of AI-integrated activities.
- Interdisciplinary partnerships with data scientists, instructional designers, educational technologists, librarians, and ethicists to co-create training with nursing faculty.

Leadership Exemplar L4.1: Tiered Faculty Development Pathway

Institutions should design differentiated faculty development pathways rather than single-event workshops. A validated, performance-based approach to assessing AI literacy — such as the Generative AI Literacy Assessment Test (GLAT) — can identify individual faculty learning needs and inform program design (Jin et al., 2025).

- Foundation tier: Conceptual literacy on how AI-assisted tools function, their limitations in clinical and educational contexts, privacy requirements, and academic integrity expectations.
- Application tier: Hands-on competency with AI-assisted tools relevant to nursing education, including scenario design, assessment generation, curriculum mapping, and prompt engineering.
- Mentorship tier: Experienced AI-integrated faculty serve as champions, guiding colleagues and contributing to institutional AI literacy through peer mentorship and modeling.

Educator Champions and Workgroups

Institutions should identify and empower faculty champions who can lead the design and adoption of AI-integrated curriculum. A dedicated AI curriculum subcommittee composed of champions can conduct systematic course reviews, propose AI integration opportunities, and serve as a first-line resource for colleagues. Champions are most effective when given protected time, administrative recognition, and access to current professional development resources.

Interdisciplinary Partnerships

Faculty development should not occur in isolation. Structured programs that integrate data scientists, instructional designers, educational technologists, and ethicists as co-educators and consultants help nursing faculty develop AI competency within an appropriately interdisciplinary framework. Participatory design approaches — in which frontline faculty help co-create training — significantly improve adoption and acceptance of AI integration strategies (El Arab et al., 2025).

Recommendation L5: Incorporate AI Readiness Into Strategic Planning and Budgeting

AI readiness should be included in strategic plans, budget cycles, accreditation preparation, faculty workload planning, and curriculum review. Treating AI as a standing planning item helps programs avoid fragmented adoption and makes improvement measurable.

Strategies

- Incorporate AI readiness into organizational planning and evaluation by including AI-related goals, metrics, and performance indicators in annual program evaluations and strategic plan dashboards.
- Allocate resources to support AI integration by budgeting for platform licensing, simulation upgrades, faculty training, accessibility review, and assessment redesign.
- Establish accountability by assigning responsibility for policy review, tool evaluation, faculty development, and outcome tracking.
- Develop guidelines for responsible administrative use of AI by limiting AI-assisted drafting to appropriate purposes, verifying all generated content, and protecting sensitive data.

AI-Assisted Accreditation Report Drafting

Administrators can use approved AI to draft accreditation narratives from verified evidence lists. The prompt should require the tool to use only the provided evidence, flag gaps, and avoid inventing facts. The final report must be reviewed and edited by the accreditation lead before use. Nursing program administrators are increasingly moving beyond theoretical discussions of AI to applying it as practical workforce tools. Accreditation (e.g., NLN CNEA, CCNE, ACEN) is arguably the most high-impact area for generative AI, transforming months of manual data entry into efficient synthesis.

NLN CNEA has a short video on "AI Guidelines for Programs and Volunteers" - https://www.youtube.com/watch?v=HC8OO5QmQp0.

Leadership Exemplar L5.1: AI-Assisted Accreditation Report Drafting: Step-by-Step Approach

Administrators can use AI to draft the *Standard* response narratives for accreditation reports.

Step 1: Prepare the AI Environment (Security & Access)

Select Secure Platform(s): Choose one or more AI platforms or Large Language Models (LLM) tools that meet institutional security requirements. Prioritize a secure/closed system, such as a licensed enterprise version for education, an institution-developed closed system, or a specifically licensed AI.

Establish Evidence Room (Optional but Recommended): Create a virtual evidence room (e.g., within the institution's LMS or an approved platform) to centralize supporting documents (meeting minutes, handbooks, etc.).

Integrate AI (If Applicable): If using an AI application that connects directly to the evidence room platform, set up the connection to enable streamlined information retrieval.

Step 2: Gather and Structure Evidence

Gather Evidence: Collect all relevant supporting documents and data for the specific accreditation standard or criterion being addressed (e.g., committee meeting minutes, educator handbook excerpts, institutional data).

Create Bulleted Lists: Summarize the gathered evidence into clear, structured bulleted lists. This serves as the input data for the AI.

Step 3: Draft the Narrative Using AI

Develop the Prompt: Create a well-defined prompt that instructs the AI to generate a cohesive narrative draft for the specific accreditation standard. The prompt should explicitly ask the AI to:
Use the provided bulleted lists as evidence.
Align the generated text with appropriate "accreditation language" (formal, objective, and focused on compliance).

Sample Prompt: *"You are helping a nursing program draft its self-study narrative for [accrediting body name] Standard [number and title, e.g., Standard III: Curriculum and Teaching–Learning Practices]. Using only the bulleted evidence provided below, write a cohesive, formal narrative of approximately [word count] words that demonstrates how the program meets this standard. Write in objective, third-person accreditation language; explicitly connect each piece of evidence to the standard's key elements; do not invent facts or add evidence that is not listed; and flag in brackets any element where the evidence appears thin so faculty can address the gap. Evidence: [paste the bulleted lists here]."*

Execute the Draft (Multi-Tool Evaluation):

Action: Input the identical prompt and the attached or provided bulleted list of evidence into 2 or 3 approved AI-assisted tools (or different instances/models of the same tool).

Purpose: To evaluate the variance and quality of the output.

Note: If your program has access to only one approved enterprise AI-assisted tool, disregard the multi-tool comparison above—generate the draft once in that approved tool and continue to Step 4.

⚠ **Caution:** Use only university-approved AI, and never enter student, patient, or other non-public data (see the full data-privacy note at the start of this toolkit).

Step 4: Review, Refine, and Finalize the Narrative

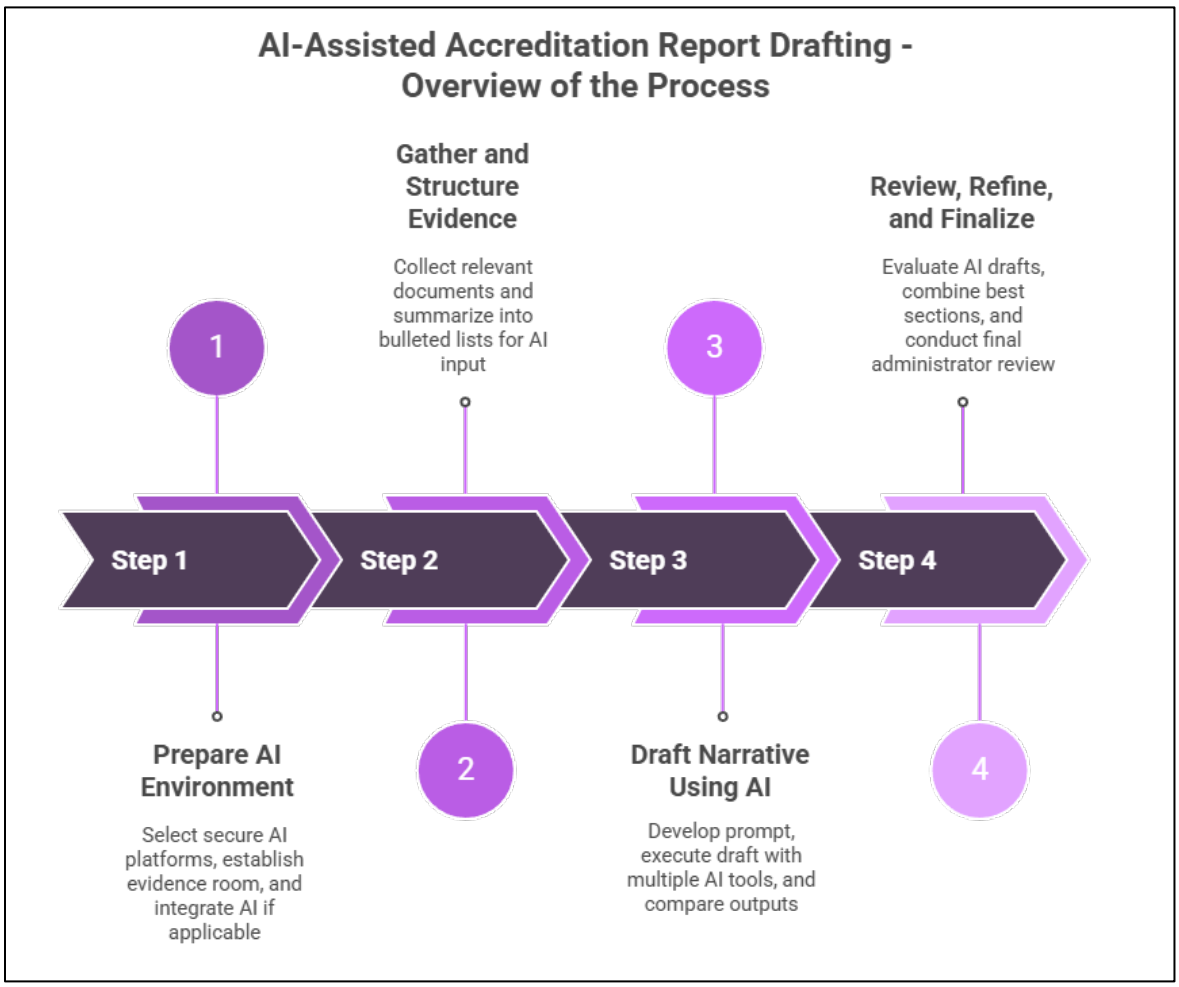
Evaluate Outputs: Compare the drafts generated by the 2-3 AI-assisted tools.

Assess Quality: Evaluate the drafts for cohesion, factual accuracy (based on the evidence), and alignment with accreditation requirements.

Combine and Edit: Select the best-performing draft or combine the strongest sections from the various outputs.

Final Review: The administrator or accreditation lead must carefully review and edit the combined draft for accuracy, tone, and full compliance before incorporating it into the final accreditation report.

⚠ **Caution:** Accreditation narratives are formal attestations, so AI may only assist with drafting—faculty and administrators remain fully responsible for the accuracy, authenticity, and evidentiary support of every statement submitted.



Infographic created by Napkin AI

Leadership Exemplar L5.2: AI-Assisted Basic Thematic Content Analysis of Student Evaluations: Step-by-Step Approach

Instead of manually reading thousands of open-ended student comments, administrators use AI to perform thematic analysis.

Step 1: Ensure Data Security and Select AI Platform

Prioritize Security: Due to the requirements of FERPA and the sensitive nature of student data, the administrator must ensure the AI platform is secure and approved by your institution.

Action: Select a platform that guarantees a high level of data protection (e.g., an institutionally licensed, secure enterprise version, or a closed internal system).

Establish Data Transfer Protocol: Determine the secure method for uploading or feeding the student evaluation survey data into the chosen AI platform.

Step 2: Prepare and Upload Evaluation Data

Extract Data: Gather the complete dataset of student evaluations, with a focus on the open-ended text comments.

Format Data: Ensure the data are in a format compatible with the AI platform (e.g., a spreadsheet or structured text file).

Secure Upload: Upload the prepared data set to the secure AI platform.

Step 3: Execute Basic Thematic Content Analysis via AI

Input Task/Prompt: Instruct the AI platform to perform a basic thematic content analysis on the uploaded text comments. The prompt should specify the desired output, such as:

- Identifying key themes and recurring topics.
- Categorizing comments (e.g., positive feedback, constructive criticism, course design, instructor performance).
- Generating summaries for each identified theme.

Process Data: The AI model processes the data (potentially thousands of comments) to identify patterns, recurring phrases, and underlying sentiment.

⚠ **Caution:** Basic thematic content analysis must not be confused with qualitative thematic analysis as a research methodology, which is a more robust, human-in-the-design/loop, process and remains controversial in AI inclusion or assistance.

Step 4: Review and Validate AI-Generated Summaries

Retrieve Output: Download or view the AI-generated summaries and thematic content analysis reports.

Validate Quality and Assess Bias:

Action: Administrators should review a sample of the raw comments against the summaries to confirm the AI-assisted summary accurately captured the core sentiment, themes, context, and potential bias.

Self-Correction/Benefit: Acknowledge that AI-generated summaries may help organize large volumes of text efficiently, but human review is required to validate accuracy, context, and potential bias before using the results.

Confirm Time Savings: Note whether the AI-assisted process substantially reduced initial review time, depending on dataset size, platform capability, and the required level of human validation.

Step 5: Use Insights for Action

Disseminate Findings: Share thematic content summaries with relevant stakeholders (e.g., department chairs, educators, curriculum committees) to inform decision-making.

Develop Action Plan: Use unbiased, data-driven insights to identify specific areas for improvement in curriculum, instruction, or student support services.

(Note: Gemini [Fast model] used to assist in drafting the outline for Leadership Exemplar L5.2; final created by author.)

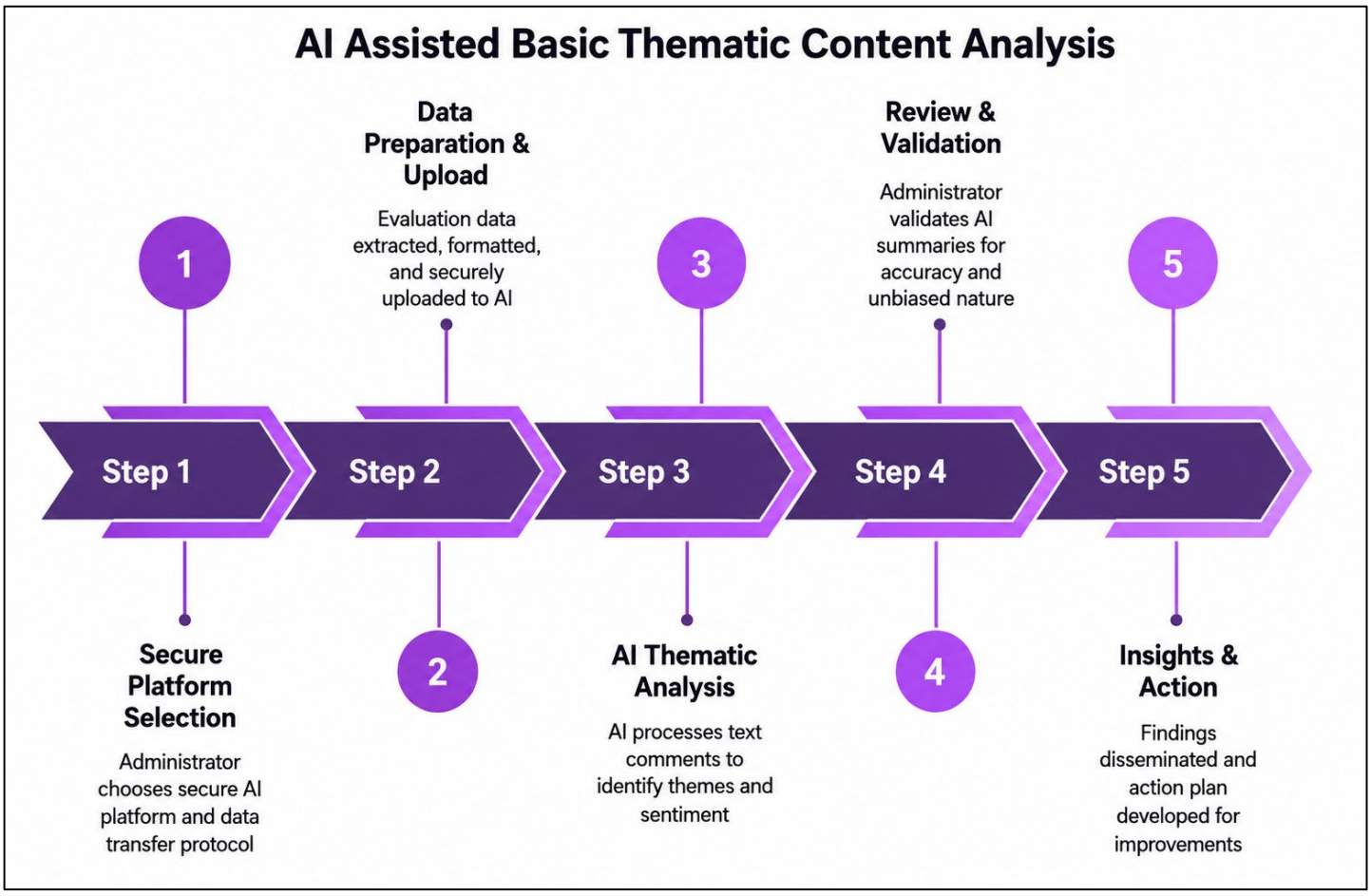
Prompt suggested for this type of analysis:

Role/Task: *You are an expert in evaluating student exit surveys. Please analyze the responses provided by the [program type] exit surveys and categorize them into clear basic thematic content areas, such as:*

- *Curriculum*
- *Clinical experiences*
- *Educator support*
- *Leadership and practice readiness*
- *Interprofessional collaboration*
- *Do students mention any other significant areas?*

Requirements:

- *Summarize feedback in bullet points under each theme*
- *Include the frequency of specific comments (e.g., 7 out of 15 comments)*
- *Highlight both positive feedback and opportunities for improvement*
- *Identify and prioritize actionable recommendations for improvement (e.g., Table 1 on p. 3)*



Infographic created by Napkin AI

Recommendation L6: Promote a Culture of Innovation and Agility to Support Iterative Curricular Reform Empowered by AI

A culture of innovation allows faculty and students to test AI-enhanced learning activities while maintaining ethical guardrails, patient-centered values, and human oversight. Innovation should be framed as disciplined experimentation rather than unstructured tool adoption.

Strategies

- Create small pilot cycles with clear goals, evaluation measures, and stop/go decision points.
- Share lessons learned across courses so successful strategies can be scaled and unsuccessful strategies can be revised.
- Recognize faculty time spent on responsible innovation, tool evaluation, and curriculum redesign.
- Solicit student feedback on clarity, equity, workload, accessibility, and perceived learning value.
- Require equity, privacy, faculty workload, and evidence checks before expanding pilot activities to additional courses.

Suggested Steps to Operationalize Innovation

- Begin with low-risk pilots in selected courses, simulation activities, or administrative workflows.
- Define success measures in advance, including learning outcomes, faculty workload, equity, privacy, and usability.
- Use rapid review cycles to refine or stop pilots based on evidence rather than enthusiasm alone.
- Share lessons learned across the program to support scaling of effective practices.

Recommendation L7: Strengthen Collaboration with Healthcare Systems and AI Industry on Collaborative Learning Environments for Learners

Nursing programs should collaborate with healthcare systems and responsible technology partners so that students learn from examples that reflect real clinical workflows, current AI, and nursing accountability. Partnerships should emphasize transparency, safety, equity, and shared evaluation.

Strategies

- Engage practice partners to identify AI currently used in clinical settings and the competencies needed by new graduates.
- Co-design simulation and case-study activities that reflect real AI-supported workflows.
- Collaborate with vendors and AI developers as educational partners only when institutional review confirms privacy, accessibility, and pedagogical value.
- Include nursing education perspectives in advisory boards, pilot reviews, and product-feedback processes.

Leadership Exemplar L7.1: Academic-Practice and Industry Partnership Models

Nursing education must actively bridge the gap between academic AI learning and the clinical environments where graduates will use AI in practice. Evidence from clinical settings confirms that AI— including predictive deterioration models, wearable monitoring systems, and decision support algorithms — require nurses who understand both the capabilities and the limitations of these technologies (El Arab et al., 2025). Strategic partnerships with healthcare systems and AI developers ensure that nursing graduates develop relevant, transferable AI competencies.

Academic-Practice Partnership Models

Nursing programs should formalize relationships with healthcare system partners to co-design AI-integrated learning experiences. This includes joint development of simulation scenarios that reflect the AI tools nurses encounter in clinical settings, shared access to de-identified datasets for educational use, and collaborative orientation programs that address AI competency at the point of hire. Simulation-based learning represents a natural bridge between academic and practice settings,

with AI in simulation demonstrating significant potential for creating adaptive, realistic clinical learning environments (Dai & Ke, 2022).

Industry Partnerships and Data Sharing

AI developers, health informatics companies, and technology vendors should be engaged as educational partners. Structured collaboration can include access to enterprise AI platforms for educational use, faculty training by vendor specialists, joint evaluation of the efficacy of educational AI products, and participation in advisory boards that embed nursing education perspectives into product development. Aligning AI competency expectations between education and workforce development reduces onboarding burden, supports faster clinical integration, and creates a shared language around AI responsibility and oversight (El Arab et al., 2025).

Recommendations for Faculty

The Faculty section focuses on teaching and learning and presents five recommendations (Recommendations F1-F5) covering AI literacy training and credentialing, curriculum redesign, AI-enhanced personalized instruction, responsible-use modeling, and assessment. These recommendations are supported by seven exemplars, including AI-assisted simulation scenario design, a nursing delegation model for AI use, and an AI literacy rubric.

Recommendation F1: Participate in Training and Credentialing Programs on AI Literacy and Ethical Use

Faculty should complete structured AI literacy development before requiring students to use AI. Training should address AI basics, prompt engineering, tool evaluation, privacy, bias, academic integrity, clinical safety, and human oversight.

Strategies

- Complete foundational and role-relevant AI education by participating in at least one foundational AI literacy course and one healthcare- or education-focused AI course.

- Select AI professional development programs that emphasize ethical use, data privacy, bias mitigation, responsible prompting, and human-in-the-loop decision-making.
- Document and apply AI learning by maintaining records of completed certificates, continuing education/contact hours, and demonstrating how the training was incorporated into teaching, simulation, or assessment.

Summary of AI Training and Credentialing Options

The table below provides examples of short courses, CE/CNE-bearing options, and certificate programs faculty may use to build AI literacy and ethical-use competence.

Selected AI Training Courses and Programs

Note: Course availability, fees, contact hours, certificates, and enrollment dates were verified from public listings where available but may change. Faculty should confirm current details, institutional approval, accessibility, and privacy requirements before enrolling or recommending a course. Additional topics are available from the NLN Consultants and Speakers Bureau. [Note: The NLN does not endorse or verify the content of these offerings.]

Course / Program	Provider	Format / Length	Focus	Website
Generative AI for Healthcare	Google Skills / Google Cloud	Online; about 1 hour; introductory / intermediate; badge available	Generative AI basics, LLMs, healthcare use cases, and prompt design.	https://www.skills.google/course_templates/1081
Integrating Artificial Intelligence (AI) in Nursing Education: A Comprehensive Guide for Faculty	NLN	Online, 6 modules, 6 CEU	Apply AI in teaching, assessment, curriculum work, and academic operations.	https://ondemand.nln.org/product?catalog=IntegratingAI
Prompt Engineering in Healthcare	AI4Healthcare	Online; about 1 hour; beginner; 4 lessons	Prompt-engineering basics, healthcare scenarios, privacy, bias, and ethical challenges.	https://www.ai4healthcare.org/courses/prompt-engineering

Certified Prompt Engineer for Healthcare & Medical AI	Udemy	Self-paced; about 7 hours	AI foundations, healthcare implementation, prompt engineering, documentation, diagnostics, privacy, and ethics.	https://www.udemy.com/course/certified-prompt-engineer-for-healthcare-medical-ai/
Introduction to Generative AI in Healthcare	Coursera	Online; about 5 hours; beginner; certificate available	Generative AI applications in diagnosis, treatment planning, medical imaging, privacy, data ethics, and responsible AI.	https://www.coursera.org/learn/introduction-to-generative-ai-in-healthcare
Artificial Intelligence Fundamentals for Healthcare	Walden University	Self-paced micro-course; estimated 5 hours; 5 ANCC contact hours	Core AI concepts, healthcare applications, ethics, and change management for nursing/clinical roles.	https://lifelonglearning.waldenu.edu/artificial-intelligence-fundamentals-for-healthcare/AIHP1001.html
AI in Healthcare Specialization	Stanford University / Coursera	Self-paced specialization; 5-course series	AI applications in healthcare, patient care, safety, ethics, research, and implementation.	https://www.coursera.org/specializations/ai-healthcare
Technology and AI: Transforming Health Professions Education	Harvard Macy Institute / Harvard Medical School	Live online; 8 weeks; certificate of completion; continuing education credit listed	Integrating technology and generative AI into health professions teaching, assessment, curriculum design, and educational leadership.	https://learn.hms.harvard.edu/programs/technology-and-ai-transforming-health-professions-education
Artificial Intelligence in Healthcare: Fundamentals and Applications	MIT xPRO	Online; 7–8 weeks; 5–7 hours/week; CEUs listed	Machine learning, deep learning, AI product design, generative AI, ethics, and applied healthcare AI projects.	https://xpro.mit.edu/courses/course-v1%3AxPRO%2BAIHCx%2BR1/
AI Healthcare Simulation Research Course	MGB University (formerly MGH Institute of Health Professions)	6-month online with optional 4 day intensive	How to conduct AI Healthcare Simulation Research	https://www.mghihp.edu/about/centers/center-excellence-healthcare-simulation-research/ai-hsr
Master of Science in Health Professions Education – AI Track	MGB University (formerly MGH Institute of Health Professions)	33 Credit Program	Formal degree program on the foundations for health professions education with integrated AI concepts and design.	https://www.mghihp.edu/health-rehabilitation-sciences/departments-programs/health-professions-education/ms-health-professions-education

Recommendation F2: Redesign Curricula to Embed AI Content in Clinical Reasoning, Simulation, Informatics, and Ethics Courses

AI should be scaffolded across the curriculum rather than isolated in a single lecture. Students need repeated opportunities to understand how AI works, critique AI outputs, apply AI-supported reasoning, and recognize ethical risks in clinical and educational contexts.

Strategies

- Integrate AI into clinical reasoning activities by requiring students to compare AI suggestions with assessment findings, evidence, and nursing judgment.
- Incorporate AI into simulation by using AI-generated drafts to support scenario design, virtual-patient practice, and debriefing prompts after faculty validation.
- Embed AI-related informatics concepts throughout the curriculum by teaching data quality, algorithmic bias, documentation, clinical decision support, and privacy considerations.
- Integrate ethics across learning experiences by addressing transparency, bias, accountability, human oversight, disability access, and patient trust.

Faculty Exemplar F2.1: AI-Assisted Simulation Scenario Design

Embed AI as a recurring thread across courses rather than a one-time activity. Focus on how students use AI to support, question, and strengthen clinical judgment. Identify custom GPTs that are specifically designed to build healthcare simulations. There is currently no single vetted national directory of customized AI assistants specifically designed for nursing education across platforms such as ChatGPT, Claude, Gemini, and Microsoft Copilot. Nurse educators should search within each platform's available discovery tools, such as the ChatGPT GPT Store, Gemini Gems, and Microsoft Copilot Agent Store, using terms such as nursing education, NCLEX, clinical judgment, simulation, medication safety, care planning, patient education, pharmacology, and assessment.

When selecting a customized AI assistant, nurse educators should evaluate the tool's purpose, source credibility, clinical accuracy, privacy protections, alignment with course outcomes, and transparency about how information is generated. Customized AI assistants should not be adopted solely because they are popular or easy to access. Faculty should test the tool with sample prompts, verify outputs

against authoritative sources, and determine whether the tool supports learning without introducing misinformation, bias, or inequitable access.

When a high-quality existing tool is not available, nurse educators may create their own customized AI assistant using an institution-approved platform. The assistant should include clear instructions, course-specific expectations, approved references, limitations on clinical advice, and guidance for students to verify AI-generated content. Faculty-developed tools should be reviewed before use and updated regularly to remain aligned with current evidence, curriculum standards, and institutional AI policies.

- **Map:** Identify where AI already appears and where it should be added across clinical reasoning, simulation, informatics, ethics, leadership, and evidence-based practice.
- **Define:** Write measurable AI outcomes related to privacy, bias, verification, disclosure, clinical judgment, and human oversight.
- **Pilot:** Add one AI-integrated activity in 2–3 priority courses, such as critiquing an AI-generated care plan, comparing AI output with evidence, or using AI to draft a simulation scenario.
- **Protect:** Require approved tools only and prohibit entry of student, patient, or non-public institutional data unless approved and de-identified.
- **Scale:** Review outcomes each semester, refine activities, and expand effective practices across the curriculum.

Prompt (italicized where specifics added): You are a clinical simulation designer working on a case for prelicensure *second-semester* nursing students using the National League for Nursing Simulation Design Template (revised February 2023). The scenario will take place in *an acute care hospital* where the patient is *admitted with* an *acute exacerbation of heart failure*. Please generate a comprehensive fictional patient profile including the following details: Patient Demographics to include name, DOB, sex assigned at birth, gender identity, pronouns, weight, height, racial/ethnic background, language, religion, insurance status, veteran status, marital status); Social & Medical History to include employment status, support person, past medical history, history of present illness, immunization history, social history, allergies, primary medical diagnosis, surgeries & procedures with dates; Administrative Information to include attending provider/team, support phone. Ensure that all details are realistic, diverse, and inclusive, representing a variety of patient backgrounds.

Example Scenario: Gemini [Fast model] Output

Here is a comprehensive, fictional patient profile for a clinical simulation case:

Heart Failure Exacerbation Simulation

Here is a comprehensive, fictional patient profile for a clinical simulation case:

Heart Failure Exacerbation Simulation

1. Patient Demographics

Detail	Information
Name	Elias “Eli” Sanchez
DOB	March 15, 1958 (Age 67)
Sex Assigned at Birth	Male
Gender Identity	Male
Pronouns	He/Him/His
Weight	225 lbs (102.1 kg)
Height	5' 9" (175 cm)
Racial/Ethnic Background	Hispanic/Latino (Cuban American)
Language	Primarily Spanish; fluent in English
Religion	Catholic
Insurance Status	Medicare and supplemental retiree plan
Veteran Status	Non-Veteran
Marital Status	Widowed

2. Social & Medical History

Social History

- Employment Status: Retired (formerly a long-haul truck driver).
- Support Person: Daughter, Sofia Rodriguez. Lives 30 minutes away and assists with appointments and managing finances.
- Social History: Lives alone in a single-family home. History of smoking (quit 10 years ago; 30 pack-year history). Alcohol use is social (1-2 glasses of wine with dinner, 3-4 times per week). Reports a low-sodium diet compliance of about 50%, stating he struggles with the taste of low-salt foods. Denies illicit drug use.

Past Medical History (PMH)

- Type 2 Diabetes Mellitus (T2DM): Diagnosed 20 years ago. Managed with oral medications.

- Hypertension (HTN): Diagnosed 25 years ago.
- Coronary Artery Disease (CAD): Diagnosed 15 years ago. Status post-Percutaneous Coronary Intervention (PCI).
- Chronic Kidney Disease (CKD): Stage 3, likely secondary to HTN and T2DM.
- Obstructive Sleep Apnea (OSA): Uses CPAP machine inconsistently.

History of Present Illness (HPI)

Mr. Sanchez was brought to the Emergency Department (ED) by his daughter due to worsening shortness of breath (dyspnea) over the last three days. Initially, he noticed he was short of breath after walking across the living room; now, he experiences it with minimal exertion, such as rolling over in bed or talking. He reports waking up at night feeling like he was drowning (*paroxysmal nocturnal dyspnea - PND*). He also reports a weight gain of 8 lbs in the past week, swelling in his lower legs (pitting edema 3+ bilaterally), and a persistent, non-productive cough. He has not been monitoring his fluid intake. He denies chest pain.

Immunization History

- Influenza: Received October of the current year.
- Pneumococcal (PCV13 & PPSV23): Up to date.
- COVID-19: Up to date with bivalent booster.

Primary Medical Diagnosis

- Acute Exacerbation of Chronic Systolic Heart Failure (HFpEF) with Volume Overload

Surgeries & Procedures

Procedure	**Date**
Percutaneous Coronary Intervention (PCI) with 2 Drug-Eluting Stents (LAD & RCA)	August 2010
Cholecystectomy (Gallbladder removal)	June 1995

Allergies

- Penicillin (PCN): Hives/Rash.
- NKDA (No Known Drug Allergies) besides PCN.

3. Administrative Information

Detail	Information
Attending Provider/Team	Dr. Aaliyah Sharma, Cardiology Hospitalist Service
Support Phone	Sofia Rodriguez (Daughter): (555) 555-1234 (Primary contact)

⚠ **Caution**: The third-party customized AI assistants named here are external tools not endorsed or vetted by the NLN, and any AI-generated scenario must be reviewed for clinical accuracy, bias, psychological safety, and debriefing quality before use.

Faculty Exemplar F2.2: AI Writing Assistant for Evidence-Based Practice

Clinical Context and Motivation

As a clinical nurse specialist working in a large academic medical center's intensive care unit, I noticed concerning variation in fluid resuscitation practices for septic patients across our nursing staff and physician teams. Some clinicians advocated aggressive early fluid administration, while others expressed concern about complications of fluid overload. This clinical uncertainty, combined with frequent questions from bedside nurses about "how much is too much," prompted me to conduct a formal evidence-based practice (EBP) inquiry. My goal was to synthesize current evidence and develop a unit-level protocol that would provide clear, evidence-based guidance while remaining flexible enough to accommodate individual patient needs.

Search & Question Formulation (EBP Steps 1-2)

Initial AI-Assisted Question Development

I began by using ChatGPT (GPT-4) as a brainstorming partner to refine my clinical question. My initial prompt was:

"I'm a clinical nurse specialist investigating fluid resuscitation strategies for sepsis patients in the ICU. Help me develop a focused PICOT question that addresses whether restrictive versus liberal fluid administration affects patient outcomes. Consider mortality, organ dysfunction, and length of stay as potential outcomes."

The AI generated several PICOT variations, including:

Population: Adult patients (≥18 years) with sepsis or septic shock admitted to the ICU

Intervention: Restrictive fluid resuscitation strategy (targeting lower fluid volumes)

Comparison: Liberal fluid resuscitation strategy (standard or higher fluid volumes)

Outcome: 30-day mortality (primary); secondary outcomes including acute kidney injury, duration of mechanical ventilation, ICU length of stay, fluid balance at 72 hours

Time: Within the first 24-72 hours of sepsis recognition

I refined this through two additional iterations, ultimately settling on: *"In adult ICU patients with sepsis or septic shock (P), does a restrictive fluid resuscitation strategy (I) compared to a liberal fluid strategy (C) reduce 30-day mortality and improve secondary outcomes including AKI incidence and ventilator-free days (O) when implemented within the first 72 hours of presentation (T)?"*

AI-Enhanced Search Strategy Development

Next, I used the AI to generate an initial list of search terms. My prompt was:

"Based on this PICOT question [pasted above], generate a comprehensive list of MeSH terms, keywords, and Boolean search strategies for CINAHL and PubMed. Include synonyms and related terms."

The AI provided:

MeSH terms: "Fluid Therapy," "Shock, Septic," "Resuscitation," "Critical Care," "Sepsis"

Keywords: restrictive fluid, liberal fluid, fluid stewardship, conservative resuscitation, goal-directed therapy, early goal-directed therapy (EGDT)

Boolean string draft: (sepsis OR "septic shock") AND ("fluid therapy" OR "fluid resuscitation" OR "fluid management") AND (restrictive OR conservative OR liberal OR aggressive) AND (mortality OR outcomes OR "acute kidney injury" OR AKI)

Critical Human Verification Step: I treated this output as a starting draft only. I manually reviewed the MeSH database to verify terms, discovered that "Hemodynamic Monitoring" and "Crystalloid

Solutions" were relevant MeSH terms the AI had missed, and adjusted the Boolean operators to ensure proper nesting. I then executed the final search across CINAHL, PubMed, Embase, and the Cochrane Library, limiting to English language articles from 2015-2024, systematic reviews, RCTs, and meta-analyses.

Search Results: The final search yielded 247 articles. After removing duplicates and applying inclusion/exclusion criteria, I had 23 relevant full-text articles including 3 major RCTs (CLASSIC, CLOVERS, REFRESH) and 5 systematic reviews.

Synthesis & Appraisal (EBP Step 3)

AI-Accelerated Evidence Synthesis

With 23 articles to review, I turned to specialized AI to accelerate the synthesis phase while maintaining rigorous oversight. I used two approaches in parallel:

Approach 1: Elicit for Structured Data Extraction

I uploaded 18 articles that were available as PDFs to Elicit.org. I created a custom extraction template asking the AI to pull:

- Study design and sample size
- Patient population characteristics (SOFA scores, baseline severity)
- Definition of "restrictive" vs. "liberal" strategy used
- Primary outcome (30-day mortality) with effect sizes
- Secondary outcomes (AKI, ventilator-free days, ICU LOS)
- Fluid volumes administered in each group
- Risk of bias assessment (as reported by authors)

Elicit generated a comparative table within minutes, organizing data across all 18 studies.

However, I immediately identified errors:

- One study's mortality data were incorrectly extracted (12% vs. 14% instead of the correct 14.5% vs. 18.2%).

- The AI conflated the "restrictive strategy" definition across studies (some defined it as <4L in 24h, others as guided by specific hemodynamic targets).
- Three articles' AKI definitions varied (KDIGO Stage 2+ vs. any KDIGO stage vs. creatinine doubling), but weren't clearly differentiated in the AI output.

Approach 2: Gemini Notebook (formerly NotebookLM) for Narrative Synthesis

For the 5 remaining studies (available only as HTML), I used NotebookLM (now Gemini Notebook). I uploaded the full-text articles and asked:

"Identify common themes across these systematic reviews regarding fluid resuscitation in sepsis. What are the main areas of agreement and disagreement? Are there any emerging trends or practice recommendations?"

NotebookLM generated a helpful narrative summary identifying three key themes:

No one-size-fits-all approach: Evidence suggests individualized, dynamic assessment is superior to fixed volume protocols.

Timing matters: Early fluid administration (first 3 hours) appears more beneficial than later aggressive resuscitation.

Monitoring modalities: Studies using advanced hemodynamic monitoring (e.g., passive leg raise, pulse pressure variation) showed better outcomes than those using static CVP targets

The AI also identified a significant knowledge gap: limited evidence in patients with pre-existing heart failure or chronic kidney disease.

Human-Led Critical Appraisal

I spent approximately 6 hours manually verifying the AI-generated synthesis:

- **Corrected all data extraction errors** by reviewing source articles
- **Standardized outcome definitions** and created subgroups based on how studies defined "restrictive" (volume-based vs. target-based)
- **Assessed methodological quality** using the Cochrane Risk of Bias tool for RCTs and AMSTAR-2 for systematic reviews (the AI could not reliably assess bias risk)

- **Identified three citations** in the NotebookLM summary that appeared accurate but, upon checking were not actually in the uploaded articles (hallucination)
- **Graded evidence quality** using GRADE criteria: rated overall evidence as "moderate quality" due to heterogeneity in interventions and populations

Key Findings from Verified Evidence:

- Restrictive strategies showed no significant difference in 30-day mortality compared to liberal strategies (pooled OR 0.96, 95% CI 0.84-1.09; moderate certainty)
- Restrictive approaches were associated with lower rates of mechanical ventilation (mean difference -1.3 days, 95% CI -2.1 to -0.5; moderate certainty)
- No significant difference in AKI rates (low certainty due to inconsistent definitions)
- Important caveat: Most studies defined restrictive as still substantial fluid volumes (typically 3-5L in the first 24 hours)

Human Oversight & Implementation (EBP Steps 4-5)

Clinical Decision-Making and Protocol Development

Critical Analysis Beyond AI Capabilities: While the AI helped organize evidence, the most crucial step required clinical expertise that AI could not provide. I considered:

- **Our unit's patient population:** Higher acuity than some study populations; many patients with comorbid heart failure
- **Current nursing practice patterns:** Survey of our 45 ICU RNs revealed high variability in assessment frequency and documentation of fluid responsiveness
- **Interdisciplinary workflow:** Needed protocol that empowered nurses to escalate concerns while respecting physician autonomy
- **Resource constraints:** Limited availability of advanced hemodynamic monitoring devices

Fact-Checking and Guideline Alignment

Before finalizing recommendations, I cross-referenced the AI-informed synthesis against authoritative sources:

- **Surviving Sepsis Campaign Guidelines (2021):** Aligned with our finding that early fluid resuscitation (30 mL/kg in the first 3 hours) followed by a cautious approach
- **Society of Critical Care Medicine Position Statement:** Supported individualized assessment over fixed volume protocols
- **Recent editorials in CHEST and JAMA:** Confirmed the shift toward "fluid stewardship" and de-resuscitation strategies

I explicitly documented the use of AI in my EBP project report and shared both AI-generated drafts and my final, verified versions with stakeholders to maintain transparency.

Implementation and Outcomes

Developed Protocol Components:

- **Initial Resuscitation Phase (0-3 hours):** Standardized 30 mL/kg crystalloid, consistent with guidelines
- **Reassessment Phase (3-24 hours):** Introduced a structured nursing assessment tool every 4 hours, evaluating fluid responsiveness (capillary refill, skin mottling, urine output, lactate trends)
- **Decision Support Algorithm:** Flowchart guiding nurses on when to notify the provider about potential fluid overload signs
- **De-resuscitation Protocol:** Guidance for transitioning to neutral/negative fluid balance after shock resolution
- **Education and Rollout:** Conducted 6 small-group education sessions with ICU nurses, emphasizing the evidence behind the protocol and the critical thinking required at the bedside.

Preliminary Outcomes (6-month pilot, n=127 septic patients):

- Median fluid balance at 72 hours decreased from +4.2L (pre-protocol) to +2.8L (post-protocol)
- No change in mortality (not powered to detect mortality difference)
- 23% reduction in diuretic use for fluid overload
- Nursing satisfaction scores improved (survey indicated nurses felt more confident in fluid management decisions)

⚠ **Caution:** General AI can fabricate citations and synthesize evidence incorrectly, so any AI-assisted protocol affecting patient care must be independently verified against primary sources and approved through standard clinical-governance channels.

Recommendation F3: Use AI-Enhanced Learning Tools (e.g., Virtual Avatars, Predictive Analytics) to Personalize Instruction

AI-enhanced learning tools can support personalized instruction when they are aligned with course outcomes, approved for use, and paired with faculty oversight. Personalization should support student reasoning rather than replace independent learning.

Strategies

- Use adaptive quizzing to identify topic gaps and provide targeted opportunities for additional practice.
- Incorporate virtual avatars or chatbot patients to support repeated therapeutic communication and assessment practice.
- Apply predictive analytics to identify students who may benefit from early support while avoiding stigmatizing labels.
- Implement AI tutors and course assistants only with appropriate safeguards by using faculty-approved content and establishing clear boundaries for use.

Faculty Exemplar 13: Creating AI Mini-Applications

Use of Generative AI to create a Mini-App for your Students

Example Prompt: *Creation of an SBAR Coach Mini App for Undergraduate Nursing Students*

***Objectives*:**

- Use ChatGPT or Microsoft Copilot to create a mini web-based application
- Test and edit the mini-app, which can be used as a future template for future apps

Tips:

- All common AI platforms can create applications
- Mini-apps work best for one small task
- You cannot always get what you want the first time, you must edit and reiterate until you achieve the app that works for your goal

Steps:

- Open the AI platform of your choice (Microsoft Copilot, ChatGPT, Gemini, etc.)
- Pre-Prompt AI
- Ask your AI platform to create a builder prompt you can reuse.
  Start with: "Create a SINGLE-FILE HTML5 web app that… …"

Example= "You are to build a SINGLE-FILE HTML5 web app (one .html file with inline CSS and vanilla JavaScript, no external libraries) for associate degree nursing students to practice and receive feedback on their ISBAR communication. The app runs fully offline in a browser and stores practice sessions locally. === OBJECTIVE === Provide structured, actionable feedback on an uploaded or pasted ISBAR, using a rubric covering: 1) Structure (ISBAR completeness and ordering), 2) Clarity (conciseness, readability), 3) Relevance (alignment with patient scenario), 4) Appropriateness (professional tone, safety advocacy, a clear "ask"). The app should make specific suggestions for improvement and show a score breakdown. Create a prompt that I can give you that will create the app."

1. The AI platform will return a prompt. Copy that prompt.
2. Paste the prompt back into the AI platform and submit it.
3. The AI Platform will now return a full HTML Code. Copy the entire code (from <!doctype html> to </html>)
4. Save and view your app.
5. Copy the HTML into a file and open in a browser.
6. If your AI Platform does not provide a preview, open Notepad in Windows and paste your copied code into a .html file.
7. To open Notepad in Windows, click on your Windows key on your keyboard and type in the search box Notepad.
8. Paste the code there and Save.

9. Give your file a name and end the file name with .html
10. Make sure “Save as Type” = All Files and Encoding=UTF-8
11. Double-click the file to open it in Chrome/Edge
12. If the file opens as text, turn on File name extensions in File Explorer and ensure the filename ends in .html, not .html.txt
13. Now reiterate and refine your app.
14. Typically, you will not have what you would like on the first try and you will need to refine.
15. Go back to your AI Platform and request the changes you would like to make, such as visual adjustments and content corrections.
16. It will direct you on how to alter or reiterate the file.
17. Test until you achieve the results you desire.

Notes:

If you want to upload this to your Learning Management System (LMS) and you use Canvas, Canvas may restrict HTML/JavaScript in course pages/files. If the app does not run inside Canvas, provide a link that opens the HTML file in a new tab or host it on an approved web location.

The Mini-App saves locally. Apps that use local storage save work only in the user’s browser (not in Canvas), unless you build a server-side solution.

⚠ **Caution:** AI-generated applications are unvalidated and may give incorrect clinical guidance, so any mini-app must be tested for accuracy, accessibility, and data privacy and clearly labeled as an educational aid, not a clinical decision tool.

Faculty Exemplar F3.2: AI-Supported Study Strategies Using Bloom’s Taxonomy

Prompt Engineering for Nursing Success: A Bloom’s Taxonomy Approach

Key Considerations:

- Verify that the AI output is accurate and congruent with classroom resources (OER, Textbook, articles, etc.)
- AI is a tool, not a replacement, and should complement your work. It is not a replacement for critical thinking, personal effort, and direct engagement with course materials.

- Protect your personal information, as AI-assisted tools vary in security.
- It is the student's responsibility to seek guidance from the instructor and academic services when needed. AI is only one resource in your toolkit.
- Exercise caution and do not enter proprietary information, such as a paid textbook, or personal confidential patient information into an AI.
- If AI is used, always transparently disclose and document or cite it appropriately. Always note the AI used, date, and time when your information was collected.

AI Study Strategies & Example Prompts Based on Bloom's Taxonomy

Remembering/Recall: (Recall basic facts or concepts)

A good technique for memorizing information you need to know pre-class. Retrieve, Recall, Recognize.

Use AI to create flashcards. (ChatGPT; Quizlet; Anki)

Prompt example to try:

"Create a flashcard on the most common side effects of metoprolol."

Use AI to clarify terms and definitions in areas like pharmacology, anatomy and physiology, etc.

***Prompt example to try*:**

"List the signs and symptoms of hypoglycemia."

Use AI to create ways to help you remember facts or practice active recall.

***Prompt examples to try*:**

"Create a memorization technique to help me remember the normal vital signs parameters for each age range." You can further refine your output by telling the chatbot that you are a second-semester student in an associate degree nursing program.

"Create a picture or infographic to help me memorize the common side effects of metoprolol."

"Create a mnemonic for remembering the side effects of metoprolol."

"Create a knowledge quiz for a second-semester nursing student on basic nursing wound care terminology." Then, once you have taken the quiz, ask the AI to give you the answers with rationales.

Understanding: (Explain ideas or concepts in your own words)

This level is about understanding general concepts and ideas before attending class. Use AI to describe or explain a concept or exemplar, using analogies or metaphors to better understand the idea.

Use AI to help you explain concepts or exemplars in basic ways – it is always good to be able to do this in your own words, but if you need help getting started, try this:

***Prompt example to try*:**

"Explain the concept of perfusion to a second-semester prelicensure nursing student using the exemplars of hypo and hypertension by converting the concept and exemplar into metaphors and engaging stories."

"For a first-semester prelicensure nursing student, compare the concepts of perfusion and oxygenation to better understand their similarities and differences. Use examples to illustrate your points."

Use AI to create analogies or metaphors or give you real-world examples to help you understand ideas better.

Prompt examples to try:

"Create an analogy or metaphor to explain the concept of perfusion to a second-semester nursing student."

"Give a real-world example for a second-semester nursing student to illustrate the concept of acid-base balance."

"Explain, like I am five years old, the concept of acid-base balance for a second-semester nursing student."

"Create a table comparing COPD to Asthma for a second-semester nursing student."

Practice teach-back by teaching your AI a concept or procedure, then let it correct you.

Prompt example to try:

> "I will teach you the action of the medication metoprolol. (Insert your teaching.) Please provide me with feedback on my teaching."
>
> "I will explain the process of performing a sterile dressing change to a patient who has a wound. I will walk you through the steps, explaining the rationale for each one. *(Insert teaching.)* Please provide questions a patient might ask and critique my teaching."

Application: (Use information in new ways)

Use AI to help you apply the knowledge you have just learned and attempted to understand in a new way and apply them to a clinical scenario or patient. This is a great post-class, though some students may prefer to start it pre-class to get a jump on the content. This is the level of most nursing exam questions.

Use AI to create role-play scenarios.

Prompt example to try:

> "Demonstrate a role play for the second-semester nursing student, showing therapeutic communication techniques in a scenario with a patient at the end of life. Please give me a rationale for their use and application."

Use AI to create clinical cases or simulation scenarios.

Prompt example to try:

> "Generate a practice case study scenario to test a second-semester nursing student to apply the concept of perfusion to a patient with a DVT."
>
> "Generate a 15-minute clinical simulation case scenario for an adult patient with Type II diabetes mellitus designed for a second-semester nursing student level. Include in this case the following information: Provider Order sheet, Medication Administration Record, ISBAR

report, Correct student behaviors in 5-minute increments with rationales, patient script and cues, with a what-if scenario at the end."

Use AI to create practice guides.

Prompt example to try:

"Create a step-by-step guide with rationales for a second-semester student to practice tracheostomy care with a pediatric patient."

Use AI to understand how a concept applies to a specific exemplar.

Prompt example to try:

"At a second-semester nursing student level, please apply and connect the concept of safety to the exemplar of asthma."

Analyze: (Draw connections among ideas)

This is where you do higher-level thinking and connect concepts together or concepts to exemplars, etc. These activities are great for studying for exams and for patient clinical care.

Classify, Categorize, Illustrate, Associate, Simplify

Use AI to create a "What if" scenario or questions to extend your thinking on a topic.

Prompt examples to try:

"Create three what-if scenarios to extend the thinking of a second-semester nursing student based on a pediatric patient with asthma exacerbation."

Use AI to create a decision tree or algorithm to better understand nursing care surrounding a specific type of client.

Prompt example to try:

"Create a decision tree for clinical reasoning at a second-semester nursing student level for a pediatric patient with RSV."

Use AI to compare and link interrelated concepts within a single clinical case.

Prompt example to try:

> "Create a complex clinical case at the level of a second-semester nursing student, combining the concepts of safety, clinical decision making, gas exchange, perfusion, and acid-base balance. Include questions to test my knowledge, understanding, and application of these concepts. Show me how these concepts tie together and interrelate."

Use AI to generate trended data for the student to practice analyzing patient trends.

Prompt example to try:

> "Generate a series of five progressive nursing progress notes over a 12-hour shift for a 65-year-old patient admitted with heart failure exacerbation. Include vital signs, respiratory status, urine output, and mental status, demonstrating a gradual decline. For the nursing student to analyze. Use **Recognizing & Analyzing Cues** to present subtle yet increasing signs of deterioration (e.g., changes in BP, HR, respiratory effort, SpO2, urine output). Avoid explicitly stating the diagnosis—allow the student to **prioritize hypotheses** based on the patterns they observe. Provide enough detail for the student to **generate solutions** (e.g., adjusting oxygen, notifying the provider, monitoring labs). Ensure the scenario includes **action** prompts that require students to decide the most urgent intervention. Conclude with a critical decision point where students must **evaluate outcomes**, determining if interventions were successful or if escalation (e.g., calling RRT) is needed."

Evaluate: (Justify a stand or decision)

Consider how nurses must defend their decisions regarding their priority assessments, interventions, and clinical decisions. This is a great way to study in groups by exchanging ideas and opinions on given topics. Also consider ethical dilemmas, quality improvement practices, or alternatives when patients refuse certain treatments. Think out of the "box"! Use AI to help you prioritize.

***Prompt examples to try*:**

"Provide 5 patient clinical case examples at a second-semester nursing student level where the nurse must prioritize who to see first, second, third, fourth, and fifth, with rationales."

"Please answer this question with a rationale and appropriate peer-reviewed citations. If you were the RN for a 10-year-old patient just admitted with respiratory distress, shortness of breath, intercostal retractions, respiratory rate of 30, and pulse oximetry of 88%, and you could only do 1 intervention, what would it be and why?"

Analyze ethical issues.

Prompt example to try:

"At the level of a second-semester nursing student, please present an ethical dilemma to be solved with a rationale surrounding a patient at the end of life. Help me to evaluate several courses of action."

Use AI to challenge your traditional thinking.

Prompt examples to try:

"Provide an example of debatable clinical decisions to challenge the thinking of a second-semester nursing student when considering the concept of oxygenation."

"At the level of a third-term nursing student, please analyze the following clinical scenario (give one) and tell me if it adheres to best clinical practices or if there are areas for improvement."

Use AI to justify nursing interventions or priority assessments.

Prompt example to try:

"Justify a clinical situation where a nurse would choose to hold the medication digoxin."

"Provide examples of scenarios where a nurse could justify prioritizing a gastrointestinal assessment of a patient over other assessments. Please support your ideas with peer-reviewed references and citations."

"Give me an example of a clinical case where an RN may choose an intervention that does not comply with evidence-based practice guidelines. Carefully explain the rationale and justification for this decision."

Create: (produce new or original work)

This is the highest level of Bloom's taxonomy. It is where you build, design, formulate, invent, develop, or generate new work. At this level, you will need to pull together all curricular content you have learned up to this point, including your pre-requisite coursework.

Use AI to create a patient education teaching plan at an appropriate developmental and educational level, including nursing assessments, interventions, rationales, and evaluation methods.

***Prompt examples to try*:**

"Develop a teaching plan for the skill of a fingerstick to a newly diagnosed 10-year-old Type I diabetic patient that incorporates developmental considerations. Include the nursing assessments, interventions with rationales, and evaluation plan in the teaching plan."

Use AI to design nursing care plans to help you synthesize information from many sources.

Prompt example to try:

"Design a comprehensive nursing care plan for a pediatric patient with asthma. The patient is a 6-year-old on day 3 of admission and about to be discharged. Include the following in the care plan: medical and nursing diagnoses, SMART goals, nursing priority assessments, and interventions with methods of evaluation. Include the types of clinical decisions a RN may need to make with rationales."

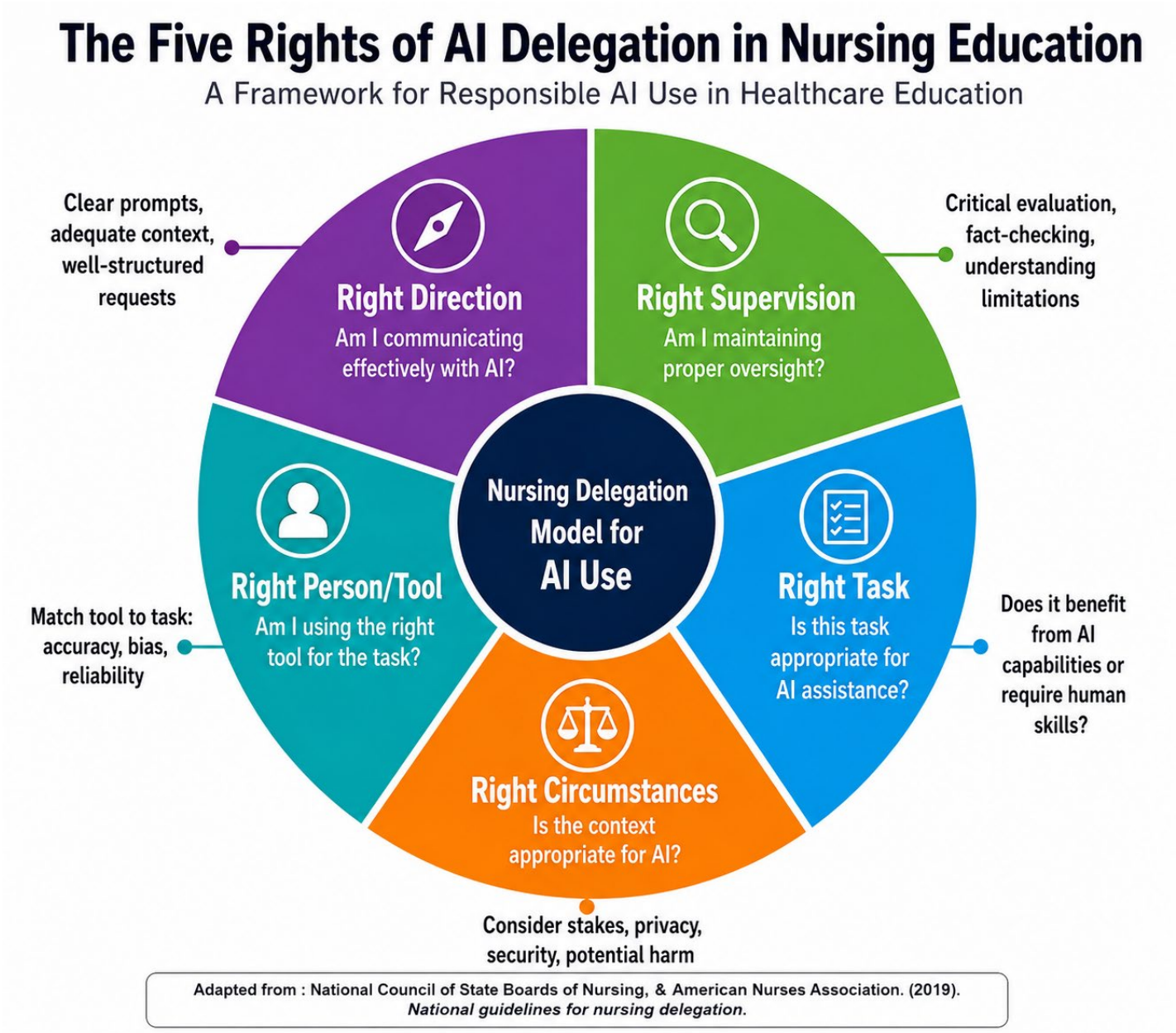
Recommendation F4: Model Responsible AI Use, Emphasizing Human Oversight and Critical Thinking

Faculty should model transparent, accountable, and reflective AI use. Responsible modeling includes explaining why AI is being used, what data may or may not be entered, how outputs are checked, and when human judgment overrides the tool.

Strategies

- Model transparent AI use by disclosing when AI has been used in teaching materials and demonstrating appropriate citation or acknowledgment practices.
- Engage with students in evaluating AI outputs by asking them to identify errors, omissions, bias, and unsafe reasoning.
- Use structured prompting frameworks that require role, task, audience, constraints, verification, and reflection.
- Reinforce professional accountability by emphasizing that AI can support reasoning but cannot replace nurse judgment, empathy, or advocacy.

Faculty Exemplar F4.1: Nursing Delegation Model for AI Use



The Five Rights of AI Delegation in Nursing Education is an adaptation of the Five Rights of Delegation described in the *National Guidelines for Nursing Delegation* (American Nurses Association & National Council of State Boards of Nursing, 2019). The application of the Five Rights to artificial intelligence in nursing education and the graphic were developed by the authors with assistance from ChatGPT (OpenAI, 2026).

Nursing Delegation Model

Using AI is a form of delegating our cognitive tasks, and we are responsible for the output of that delegation. The Nursing Delegation Model is an existing decision-making framework we can use to inform this process.

Questions to ask when choosing to use AI:

- **Right Task**: Is this task appropriate for AI assistance? Does the task benefit from AI capabilities or does it require uniquely human skills?
- **Right Circumstances**: Is the context appropriate for AI use? What are the stakes? Are there privacy, confidentiality, or security concerns? Is this a high-stakes decision where errors could cause significant harm?
- **Right Person/Tool:** Am I using the right AI for this task? AI-assisted tools have different strengths, limitations, and training data. Match the tool to the task. Consider factors like accuracy, bias, and reliability for your specific use case.
- **Right direction and communication**: Am I communicating effectively with the AI? Consider: Are my prompts clear and specific? Do I provide adequate context? Do I understand how to structure requests for the best results? Am I asking the right questions and providing the right information?
- **Right Supervision/Evaluation**: Am I maintaining appropriate oversight and accountability? Am I critically evaluating AI outputs? Am I fact-checking and verifying information? Do I understand the limitations of the AI's output? Am I taking responsibility for the final decision or product?

National Council of State Boards of Nursing, & American Nurses Association. (2019). *National guidelines for nursing delegation*.

Recommendation F5: Develop Assessment Rubrics That Evaluate Both Knowledge of and Practical Engagement With AI

Assessment should evaluate what students know about AI and how they use AI in practice. Rubrics should include awareness of capabilities and limitations, ethical use, critical evaluation of outputs, integration with nursing judgment, and transparency about AI assistance.

Strategies

- Use formative assessments early to develop AI competencies by giving students opportunities to practice safe and responsible AI use before high-stakes assignments.
- Include performance-based tasks that require students evaluate, revise, or correct AI-generated content.
- Align AI-related assessment criteria with learning outcomes by ensuring rubric criteria reflect course outcomes, program outcomes, and clinical judgment expectations.
- Monitor student development over time by tracking growth in AI knowledge and skills across the curriculum.

Faculty Exemplar F5.1: AI Literacy Rubric and Program Readiness Continuum

A practical rubric can rate students from beginner to advanced on understanding AI capabilities and limitations, ethical and professional responsibility, critical evaluation of AI outputs, and integration into nursing practice.

Assessing AI Literacy: A Practical Rubric

Assessing nursing students' AI literacy requires clear criteria and consistent evaluation methods. The following rubric provides a framework for measuring student competency across four essential dimensions of AI literacy. This tool can be adapted for different educational levels and can be used both formatively (to guide learning and provide feedback) and summatively (to evaluate achievement of learning outcomes). The rubric aligns with the AI competencies outlined earlier in this toolkit and reflects the practical skills nurses need in AI-enhanced healthcare environments.

AI Literacy Dimension	Beginning (1)	Developing (2)	Proficient (3)	Advanced (4)
Understanding AI Capabilities & Limitations	Demonstrates limited understanding of what AI can and cannot do; confuses AI capabilities with human intelligence	Describes basic AI capabilities; recognizes some limitations but may overestimate or underestimate AI potential	Accurately explains current AI capabilities and limitations; distinguishes between different types of AI applications in healthcare	Critically evaluates AI capabilities across contexts; anticipates potential limitations before they occur; can explain to patients and colleagues; stays up-to-date with AI innovations
Ethical Use & Professional Responsibility	Uses AI without considering ethical implications; may violate patient privacy or professional standards	Recognizes basic ethical concerns; follows explicit rules but may miss nuanced ethical issues	Consistently applies ethical principles to AI use; protects patient privacy; maintains professional boundaries; discloses AI use appropriately	Anticipates ethical dilemmas; advocates for responsible AI use; educates others about ethical considerations; challenges inappropriate AI applications
Critical Evaluation of AI Outputs	Accepts AI outputs without question; unable to identify errors or biases; may trust AI over clinical judgment	Sometimes questions AI outputs but inconsistently; may miss subtle errors; relies heavily on AI recommendations	Systematically evaluates AI outputs against evidence and clinical knowledge; identifies potential errors and biases; integrates AI insights with clinical judgment	Conducts sophisticated analysis of AI recommendations; recognizes algorithmic bias; validates AI outputs with multiple sources; teaches others critical evaluation skills
Integration into Nursing Practice	Cannot articulate how AI might be used in nursing; avoids or misuses AI; does not see relevance to practice	Uses AI when explicitly directed; beginning to see connections to nursing practice; requires guidance for appropriate application	Independently selects and uses appropriate AI to enhance patient care; integrates AI efficiently into workflow; maintains focus on patient-centered care	Innovates with AI applications; optimizes AI use for improved outcomes; mentors others; contributes to AI implementation decisions; advocates for patients in AI adoption

Implementing AI in nursing education is a journey that can begin at any point along a continuum. This framework provides a roadmap for nursing programs to assess their current state and plan their progression toward comprehensive AI integration. The framework is designed to be flexible, allowing programs to start where they are and advance at a pace that suits their institutional context, resources, and student needs.

Using the Rubric

This rubric can be utilized across a range of assessment activities, including reflective journals about AI experiences in a clinical or simulation setting; case study analyses that require evaluation of AI recommendations; simulation debriefings in which AI has been used; clinical assessments that include observation of AI literacy; capstone or portfolio projects that demonstrate AI competency; and written assignments that analyze AI applications in nursing.

Share the rubric with students at the outset of the course or program to help them understand expectations and work towards meeting them. Consider using this rubric formatively throughout the program to track students' AI literacy development over time. For instance, a student should demonstrate progression from a Beginning to an Advanced level as they gain experience and knowledge in AI literacy.

Educators are encouraged to develop specific, contextually relevant examples for each performance level to provide constructive feedback that guides students toward higher levels of competency. The rubric can be modified to emphasize dimensions that align with course objectives or specific AI applications in your curriculum.

Stage	Awareness & Exploration	Initial Implementation	Integration & Expansion	Innovation & Leadership
Primary Objective	Understanding AI capabilities and limitations in nursing education	Implementing AI in selected courses or activities	Integrating AI across multiple courses and learning environments	Leading AI innovation and contributing to the evidence base
Educator Development	Basic AI literacy workshops and awareness training	Hands-on training with specific AI; pilot projects	Advanced AI pedagogy: educator become AI mentors	Educator conducting AI education research

				and presenting at conferences
Curriculum Integration	Isolated AI demonstrations or guest lectures	AI used in 1-2 courses; learning outcomes specified	AI competencies scaffolded across program; integrated assessments	Comprehensive AI-enhanced curriculum with documented outcomes
Assessment Approach	Exploring assessment possibilities	Formative assessments of AI literacy in select courses	Systematic assessment of AI competencies throughout program	Validated assessment tools; longitudinal tracking of AI competency development
Infrastructure & Resources	Minimal investment; using free AI	Some institutional licenses; basic IT support	Robust AI infrastructure; dedicated support; budget allocation	State-of-the-art AI resources; partnerships with AI companies; grant funding

Faculty Exemplar F5.2: AI Assessment Scale Adapted for Nursing Education

The AI Assessment Scale (AIAS) can help faculty clarify when AI is prohibited, when AI may support brainstorming or editing, when AI output must be critiqued, and when AI may be used collaboratively as part of an advanced task.

Examples of Use of AIAS in Nursing Education

Scale Level	Nursing Education Assessment Task	Example Student Prompt for Generative AI
1. No AI	NCLEX Readiness & Safety Checks: In-class medication dosage calculation exam, manual vital signs assessment, or "closed book" anatomy and physiology quiz.	(No AI engagement at this level)
2. AI-Assisted Idea Generation & Structuring	Community Health Project Proposal: Use AI to brainstorm public health topics relevant to a specific zip code, but the final project proposal must be written entirely by the student based on verified peer-reviewed data.	"Generate a list of top public health concerns for geriatric populations in rural areas to help me brainstorm topics for my capstone project."

3. AI-Assisted Editing	Clinical Reflection Paper: Draft a reflection on a palliative care rotation. Use AI to refine the tone to be more professional or to check for grammatical errors, but the insights must be your own.	"Review my reflection paper for passive voice and grammar errors, but do not change the clinical terminology or the description of my patient interaction."
4. AI Task Completion, Human Evaluation	The "Auditor" Assignment: Ask AI to generate a Nursing Care Plan for a patient with complex comorbidities (e.g., COPD and Heart Failure). The student must then "redline" the plan, correcting unsafe interventions and prioritizing diagnoses.	"Generate a nursing care plan for a patient with Stage 3 CKD and Hypertension. I will then correct your interventions based on current evidence-based practice guidelines."
5. Full AI	Disaster Triage Simulation: Collaborate with AI to design a mass-casualty simulation scenario, including patient scripts, vital sign progression, and resource allocation lists for a fictional hospital unit.	"Act as a patient with worsening sepsis. I will ask you assessment questions, and you provide responses and changing vital signs based on the SIRS criteria."

Choosing the Right Tool for the Task

Frameworks such as CLEAR, TRACI, GRADE, RISEN, PAIR, CARE, and RACE can help faculty and students clarify purpose, provide context, set constraints, and evaluate outputs. The framework matters less than the habit of being explicit, reflective, and accountable.

The frameworks described below are not one-size-fits-all. Although they are intended to improve AI output, each emphasizes different elements of the interaction, making the choice of model a strategic one based on the specific goal of the nursing professional.

**see below text descriptions for each framework/acronym.*

By consciously selecting a framework, nursing professionals ensure they are not just talking to the AI but directing it with maximum effectiveness. This deliberate, structured approach is what moves AI from a novel tool to an indispensable partner in patient care and operational excellence. Specific examples are provided for each approach to guide the process.

Example using the CLEAR approach:

C - Concise: Use only essential words.

L - Logical: Be intentional about the order of ideas.

E - Explicit: Provide precise instructions about the format, content, or scope of your desired output.

A - Adaptive: After you've run your initial prompt, you might find ways to improve it.

R - Reflective: Think critically about the AI answer. Based on what you know of the topic, does it make sense? Does it seem grounded, or could the AI have hallucinated?

Example:

Concise: "Develop NCLEX-style questions on heart failure."

Logical: "Develop NCLEX-style questions on heart failure, beginning with assessment, moving to interventions, then patient education."

Explicit: "Create 3 NCLEX-style multiple-choice questions on heart failure for prelicensure nursing students. Each question should have 4 options, identify the correct answer, and provide a 2–3 sentence rationale."

Adaptive: (After reviewing the initial response, refine it.)

"Can you adjust the NCLEX-style questions to focus specifically on prioritization of nursing interventions in acute heart failure?"

Reflective: "Now provide rationales that not only explain the correct answer but also highlight common misconceptions nursing students may have about heart failure management."

Example using the TRACI approach:

T - Task: What do you want the AI to do? This is the specific activity or question.

R - Role: Who should the AI pretend to be? Assign a persona/expertise to guide the response.

A - Audience: Who is this for? Specify the intended recipient or group.

C - Create: What format or output do you want? Define the type of response.

I - Intent: Why are you asking this? Describe the goal or desired impact.

Example:

Task: Create a simulation case study on medication errors in the clinical setting.

Role: Act as a Certified Healthcare Simulation Educator (CHSE).

Audience: This is for prelicensure nursing students in their first medical-surgical course.

Create: Develop a structured scenario outline that includes patient background, clinical context, three possible error points, and guided debriefing questions.

Intent: To help students recognize the risks of medication errors, practice safe medication administration, and reflect on strategies to prevent errors in real practice.

Prompt: Create a simulation case study on medication errors in the clinical setting. Act as a Certified Healthcare Simulation Educator (CHSE). This is for prelicensure nursing students in their first medical-surgical course. Develop a structured scenario outline that includes patient background, clinical context, three possible error points, and guided debriefing questions. The intent is to help students recognize risks of medication errors, practice safe medication administration, and reflect on strategies to prevent errors in real practice.

Example using GRADE approach:

G - Goal: Specifies the ultimate objective of the AI's task, providing a clear direction for the interaction.

R - Request: Outlines the specific question or task posed to the AI, framing the context of its response.

A - Action: Details the steps or processes the AI should undertake to fulfill the request.

D - Details: Provides additional information or parameters to guide the AI's response, ensuring accuracy and relevance.

E - Example: Offers a concrete instance or scenario that illustrates that expected outcome or approach, aiding in the AI's understanding of the task.

Example:

Goal: Create a simulation scenario on sepsis recognition for prelicensure nursing students.

Request: Develop a case study that includes patient history, presenting symptoms, vital signs, and lab results.

Action: Outline the expected nursing interventions step by step, integrate decision points for students, and provide educator debriefing prompts.

Details: Keep the case at the last semester of an undergraduate program level, align with NCLEX test plan concepts, and ensure the simulation can be run in 30–40 minutes.

Example: For instance, use a 65-year-old male patient presenting to the ER with fever, hypotension, tachycardia, and confusion after a recent urinary tract infection.

Prompt: Create a simulation scenario on sepsis recognition for prelicensure nursing students. Develop a case study that includes patient history, presenting symptoms, vital signs, and lab results. Outline the expected nursing interventions step by step, integrate decision points for students, and

provide educator debriefing prompts. Keep the case at a last semester of an undergraduate program level, align with NCLEX test plan concepts, and ensure the simulation can be run in 30–40 minutes. For instance, use a 65-year-old male patient presenting to the ER with fever, hypotension, tachycardia, and confusion after a recent urinary tract infection.

Example using the RISEN approach:

R - Role: Who should the chatbot act as?

I - Instructions: Style, structure, or order.

S - Steps: Specific information you want the AI to follow.

E - End goal: What do you want the output to focus on?

N - Narrowing: Any constraints to consider?

Example:

Role: Act as a Certified Nurse Educator.

Instructions: Design a simulation scenario for prelicensure nursing students on managing a patient with postpartum hemorrhage.

Steps:

1. Provide a brief patient background.
2. List initial assessment findings.
3. Outline the expected nursing interventions.
4. Include 3–4 prompts for educator debriefing.

End goal: Create a structured simulation scenario that improves students' critical thinking and readiness to respond to emergencies.

Narrowing: Keep the case realistic, align with the first-year student scope, and limit the scenario to a 30-minute timeframe.

Prompt: Role: Act as a Certified Nurse Educator.

Main Task: Design a simulation scenario for prelicensure nursing students on managing a patient with postpartum hemorrhage.

Steps to complete task: (1) Provide a brief patient background, (2) list initial assessment findings, (3) outline the expected nursing interventions, and (4) include 3–4 prompts for educator debriefing.

Goal: Create a structured simulation scenario that improves students' critical thinking and readiness to respond to emergencies.

Constraints: Keep the case realistic, align with first-year student scope, and limit the scenario to a 30-minute timeframe.

Example using the PAIR approach:

P - Problem: Defines the task, goal, or challenge the AI needs to solve.

A - AI: Defines the AI's persona, role, or specific expertise it must adopt to address the problem.

I - Interaction: Defines the steps, format, or intermediate actions the AI must perform to process the problem.

R - Reflection: Asks the AI to critically review, evaluate, or improve its own output.

Example:

Problem (the Goal): Design a complete, high-fidelity patient simulation scenario for senior-level nursing students on the topic of Early Sepsis Management in a hospitalized adult. Target Audience: Senior-level BSN students. Core Goal: To create a realistic scenario that requires prompt recognition of the signs of sepsis, activation of the rapid response team (RRT), and initiation of the Sepsis Bundle of Care.

AI (the Persona): The Role - Act as a Certified Healthcare Simulation Educator (CHSE) with 15 years of experience in critical care and curriculum design. The Focus - The output must be evidence-based, follow the Sepsis 3.0 criteria, and adhere to Healthcare Simulation Standards of Best Practice™: Simulation Design by INACSL.

Interaction (the Steps): The AI must provide the following distinct, sequential outputs to build the final scenario:

Patient Data: Provide the initial report (Handoff) and key vitals/labs that support a SIRS/sepsis diagnosis (e.g., initial high temp, elevated lactate).

Trigger Events: List 3-4 specific patient changes (trigger events) that should happen during the scenario (e.g., blood pressure drops, patient becomes disoriented) to test the student's response.

Critical Actions: Identify the top five required critical actions the student must perform to "pass" the scenario (e.g., Administer X IV fluids, obtain blood cultures, call RRT).

Reflection (the Review): The Review Task: After generating the scenario, critically analyze the realism and the psychological safety of the proposed scenario. The Refinement: Based on the review, propose one specific modification to the scenario's initial setup (the Handoff) to increase realism without compromising student safety.

Prompt: [Problem] Design a complete, high-fidelity patient simulation scenario for senior-level BSN students focused on the prompt recognition and initial management of Early Sepsis in an adult patient. The scenario must culminate in the correct initiation of the Sepsis Bundle of Care and RRT activation.

[AI] Adopt the persona of a Certified Healthcare Simulation Educator (CHSE) with 15 years of critical care experience. Ensure all elements are evidence-based, adhere to Sepsis 3.0 criteria, and follow Healthcare Simulation Standards of Best Practice™: Simulation Design by INACSL.
[Interaction] First, provide the Initial Patient Handoff and key lab/vital sign data that indicates a sepsis risk. Second, list 3-4 specific Trigger Events that will happen during the simulation (patient status changes). Third, identify the Top Five Required Critical Actions the student must perform to successfully manage the patient.

[Reflection] After generating the scenario, critically analyze your design for both clinical realism and student psychological safety. Based on this reflection, propose one specific modification to the Initial Handoff data that would increase the scenario's realism without being overwhelming to the student.

Example using the CARE approach:

C - Context: Describe the relevant background, situation, or environment

A - Ask/Action: Specify the exact task or operation to be performed

R - Result: Define the desired outcome, deliverable, or output format

E - Example: Provide a reference or sample that illustrates the expected output

Example:

Context: You are a nurse educator teaching prelicensure nursing students in their second medical-surgical course. Students are preparing for a high-fidelity simulation focused on acute heart failure exacerbation. Learners have foundational knowledge but need support connecting assessment findings to clinical judgment and prioritization.

Ask / Action: Ask the AI to generate pre-simulation guiding questions that help students activate prior knowledge and anticipate patient care decisions related to heart failure.

Result: Request 5 guiding questions written at a prelicensure level, aligned with the Clinical Judgment Measurement Model. Output should be concise, student-facing, and formatted as a bulleted list suitable for a learning management system.

Example: Share an example that clearly separates context, action, result, and example elements. This helps the AI mirror the structure and level of specificity expected.

Context: I am a nurse educator teaching second-semester prelicensure nursing students in a medical-surgical course. Students will participate in a high-fidelity simulation involving a patient admitted with an acute exacerbation of heart failure. Learners have completed didactic content on cardiovascular assessment and fluid balance, but struggle with prioritization and clinical judgment.

Ask/Action: Generate pre-simulation guiding questions to help students prepare for the simulation.

Result: Provide 5 guiding questions written at an appropriate prelicensure nursing level. Align the questions with the Clinical Judgment Measurement Model, particularly recognizing cues and analyzing cues. Format the output as a bulleted list that can be copied directly into a learning management system. Use clear, student-friendly language.

Example: I am attaching an example of other guiding questions used in a different simulation to model the structure and clarity.

Example using the RACE approach:

R – Role: Define the role the AI should assume to shape tone, depth, and expertise.

A – Action: Specify the exact task the AI is expected to perform.

C – Context: Provide the academic, clinical, and learner-level background needed for accurate output.

E - Explanation (Expectation): Clarify how the output should be structured and what it should include or avoid.

Example:

Role: Instruct the AI to function as an experienced nurse educator and clinical expert with advanced practice and curriculum design expertise, familiar with graduate-level expectations, evidence-based practice, and clinical scholarship.

Action: Ask the AI to critique and refine a draft discussion post written by graduate nursing students that addresses implementation challenges of evidence-based practice in a clinical setting.

Context: The task is situated in a graduate-level nursing course focused on evidence-based practice and quality improvement. Students are expected to integrate current literature, clinical experience, and systems-level thinking. The discussion post is part of an online asynchronous course.

Explanation (Expectation): Request concise, formative feedback written in an academic but supportive tone. The response should identify strengths, note gaps in scholarly integration, and suggest specific strategies to strengthen clinical application. Output should be organized in short sections or bullet points suitable for educator review or direct student feedback.

Role: Act as an experienced graduate-level nurse educator with expertise in evidence-based practice, clinical scholarship, and advanced nursing education.

Action: Review and provide formative feedback on a draft graduate student discussion post that addresses barriers to implementing evidence-based practice in a clinical setting.

Context: This discussion post is part of a graduate nursing course on evidence-based practice and quality improvement. Students are expected to integrate peer-reviewed literature, reflect on real-world clinical systems, and demonstrate advanced critical thinking appropriate for master's- or doctoral-level study.

Explanation (Expectation): Provide concise, constructive feedback in an academic and supportive tone. Identify key strengths, highlight areas where scholarly evidence or clinical reasoning could be strengthened, and offer 2–3 specific recommendations for improvement. Format the response using brief headings or bullet points so it can be shared directly with students.

Framework*	Primary Focus	Best Used When...
CLEAR	Quality Assurance	Used as a pre-flight checklist to ensure the prompt itself meets the highest standards of clarity and critical thinking before execution.
TRACI	Defining the Scope	You need to ensure the AI adopts a specific professional persona and tailors the output to a defined end-user.
GRADE	Precision and Specificity	You are looking for a highly specific, repeatable output and need to provide the AI with a model of the desired result (i.e. for fine-tuning).
RISEN	Process and Constraints	The task requires a series of distinct steps, or the input data are complex and need specific constraints applied.
PAIR	Iterative Problem-Solving	The task is exploratory, complex, or requires critical analysis and self-correction, promoting a four-stage process rather than just a single prompt.
CARE	Simplicity and Directness	A simpler, more streamlined approach is needed for quick, everyday tasks where the focus is on direct action and verifiable output.
RACE	Role-Based Output with Rationale	The AI must operate under a specific professional lens and provide not only the answer but also a clear rationale for its recommendations or actions.

Recommendations for Collaboration with Clinical Practice Partners

This perspective section for collaboration with practice partners addresses academic–clinical collaboration, with six recommendations: co-creating AI-enabled simulation and clinical learning, practice mentorship, data and tool sharing, nurse-led innovation pilots, education–workforce alignment, and joint appointments. Each of these recommendations are anchored by a dedicated exemplar, from a clinical AI mentorship guide to a shared AI competency map.

Recommendation C1: Co-Create Simulation and Clinical Learning Experiences That Incorporate AI-Based Decision-Making Tools

Clinical practice partners can help nursing programs design learning experiences that reflect how AI decision-support tools are used in current clinical environments. Co-created activities should highlight both the usefulness and limitations of AI-generated recommendations.

Strategies

- Identify a clinical partner liaison for simulation or case-study development.
- Use de-identified clinical patterns or scenarios to enhance authenticity and realism.
- Incorporate opportunities for students to question, validate, or override AI-generated output.
- Debrief the professional accountability associated with AI-supported decision-making.

Partnership Exemplar C1.1: Clinical Practice-Partner Simulation with Embedded AI Decision Support

A clinical partner and faculty team develop a heart failure or sepsis scenario in which students receive an AI-generated risk alert. Students must assess the patient, compare the alert with clinical cues, decide whether to escalate, and explain their reasoning in debriefing.

Practice partners play a transformative role in co-designing simulation and clinical learning experiences that authentically reflect how AI functions in practice. When academic faculty and clinical educators collaborate in scenario design, simulations incorporate the real contexts, workflows, and clinical decision patterns students will encounter as graduates. AI-assisted tools and applications in simulation have demonstrated the ability to create adaptive, responsive learning environments that reflect authentic clinical situations (Dai & Ke, 2022; Komasawa & Yokohira, 2023).

Implementation Strategies

- Identify a simulation liaison within partner healthcare organizations to coordinate joint scenario development at least once per academic year.
- Align simulation objectives with AI-related competencies in the partner system's orientation curriculum.
- Use de-identified clinical data to inform realistic scenario design.
- Co-develop embedded participant scripts and debriefing guides that address how AI outputs should be interpreted, validated, and questioned in clinical practice.

Recommendation C2: Establish Mentorship Programs Where Nurses in Clinical Practice Mentor Students on AI Use

Clinical nurses who use AI-supported tools can mentor students on practical issues such as workflow integration, documentation, patient communication, alert fatigue, and the continued importance of nursing judgment.

Strategies

- Pair students with clinical nurse mentors in final-semester or transition-to-practice experiences.
- Use guided reflection prompts focused on AI use, verification, escalation, and patient advocacy.
- Orient mentors to expectations for privacy, documentation, and AI disclosure expectations.
- Collect and use student and mentor feedback to evaluate and refine the mentorship model.

Partnership Exemplar C2.1: Clinical AI Mentorship Conversation Guide

Mentors can ask students to describe one AI-supported workflow they observed, identify what data the tool appeared to use, explain how the nurse verified or questioned the output, and reflect on what remained a human nursing responsibility.

Clinical nurses who use AI daily are uniquely positioned to mentor students on the practical realities of AI in the healthcare environment — including its benefits, its limitations, and the professional judgment required to use it responsibly. Evidence from clinical settings indicates that nurses view AI as a meaningful asset in patient care, while also emphasizing the irreplaceable importance of human oversight and clinical intuition (El Arab et al., 2025).

Mentorship Program Design

- Pair students with clinical nurse mentors in their final semester of clinical education
- Include a structured AI-focused discussion component addressing what AI the mentor uses, how they verify AI-generated outputs, and when they override AI recommendations

- Use guided reflection tools that prompt students to document examples of effective and ineffective AI use observed in clinical settings
- Provide mentor orientation that reinforces professional accountability, transparency, and documentation expectations when using AI

Recommendation C3: Share Data and Tools to Train Students on Real-World AI Platforms Used in Clinical Settings

Students need exposure to realistic tools and data environments before graduation. Clinical practice partners can support learning through access to de-identified datasets, sandbox platforms, supervised demonstrations, and onboarding modules aligned with clinical practice.

Strategies

- Establish data-use agreements to support access to de-identified educational datasets.
- Provide supervised demonstrations or sandbox access to approved AI platforms.
- Create orientation modules that explain tool purpose, limitations, escalation procedures, and documentation expectations.
- Participate in curriculum review to ensure classroom examples reflect current practice.

Partnership Exemplar C3.1: Shared Sandbox or Demonstration Environment

A healthcare partner provides a training environment where students can view de-identified dashboards or sample decision-support alerts. Faculty design activities requiring students to interpret the output, verify it with patient data, and identify safety concerns before action.

Students who graduate having only used consumer AI may be unprepared for the specialized AI systems used in healthcare. Practice partners can facilitate exposure to real-world AI platforms through structured educational agreements. Rigorous assessment of AI literacy requires performance-based evaluation — not just self-reported familiarity — with the actual tools and data environments students will encounter after graduation (Jin et al., 2025).

Partnership Strategies

- Establish data use agreements for de-identified educational datasets.
- Provide supervised clinical experiences focused specifically on AI observation and structured interaction.
- Co-develop orientation modules for new graduates that include AI platform onboarding and safe use practices.
- Collaborate in academic program reviews to ensure AI curriculum reflects current clinical tools and workforce expectations.

Recommendation C4: Support Nurse-Led Innovation Projects and Pilot Programs in AI-Enhanced Care Delivery

Clinical practice partners can help students and faculty see nurses as AI innovators, not just AI users. Nurse-led projects should be grounded in patient safety, workflow needs, equity, and measurable outcomes.

Strategies

- Identify clinical nurse champions interested in advancing AI-enhanced care delivery.
- Establish joint innovation channels between academic programs, nursing informatics, quality improvement teams, and clinical operations.
- Provide academic support for innovation projects through literature review, IRB navigation, evaluation design, and dissemination.
- Disseminate pilot findings through posters, presentations, publications, and curriculum updates.

Partnership Exemplar C4.1: Nurse-Led AI Pilot Project Template

Each pilot should define the clinical problem, nurse role, AI or workflow, patient-safety safeguards, equity considerations, evaluation metrics, and decision criteria for scaling, revising, or stopping the project.

Clinical practice partners are well-positioned to support nurse-led AI innovation by providing the clinical environment, patient data, administrative infrastructure, and operational support for pilot programs that bridge nursing expertise and AI capabilities. AI-driven workflow management tools, predictive staffing models, and clinical decision support systems all represent domains where nurses in practice can lead innovation with appropriate institutional support (El Arab et al., 2025).

Partnership Strategies

- Identify clinical nurse champions at partner institutions who are interested in AI pilot projects.
- Establish joint innovation channels between the nursing program and the healthcare system's nursing informatics and/or quality improvement teams.
- Provide academic support for nurse-led innovation projects through faculty consultation, IRB navigation, and evaluation design.
- Recognize and disseminate successful pilot outcomes through joint presentations and publications.

Recommendation C5: Align Education and Workforce Development for Current and Future Nurses on AI Education

Academic programs and healthcare systems should coordinate expectations, so graduates enter clinical practice with AI literacy that matches workforce needs. Alignment reduces onboarding burden and creates shared language around safety, accountability, and responsible use.

Strategies

- Conduct an annual joint review of AI competency expectations across the clinical environment and nursing curriculum.
- Develop shared AI competency maps that define expectations at graduation and during the first year of practice.
- Integrate AI orientation into new graduate onboarding and residency programs.
- Use workforce feedback to continuously revise academic learning outcomes and clinical experiences.

Partnership Exemplar C5.1: Shared AI Competency Map

A shared map can identify which AI competencies are introduced in the academic program, practiced during clinical experiences, verified at graduation, and reinforced during employer onboarding.

The gap between what nursing education addresses and what healthcare systems expect of new graduates regarding AI competency is a recognized and growing challenge. Clinical practice partners and academic programs must actively coordinate to ensure this gap is closed. Successful AI integration into nursing requires comprehensive strategic planning that addresses educational, clinical, ethical, and operational dimensions simultaneously (El Arab et al., 2025).

Alignment Strategies

- Conduct annual joint reviews of AI competency expectations across the clinical environment versus the nursing curriculum.
- Develop a shared competency framework that defines AI literacy expectations at graduation and at one-year post-hire.
- Integrate AI competency verification into hiring, onboarding, and performance review processes.
- Share clinical outcome data related to new graduate AI performance to inform ongoing curriculum refinement.

Recommendation C6: Explore Joint Appointments for AI-Savvy Faculty and Clinicians to Bridge Academia and Practice

Joint appointments can help keep AI education clinically current while giving practice settings direct access to educational expertise. These roles are especially useful for simulation, informatics, quality improvement, clinical decision support, and AI safety work.

Strategies

- Define time allocation, reporting relationships, responsibilities, and evaluation expectations within the joint appointment agreement.

- Prioritize clinicians with experience in informatics, simulation, quality improvement, AI safety, or clinical education.
- Include joint appointees on academic curriculum committees and clinical AI governance structures.
- Support ongoing scholarship, faculty development, clinical currency, and curriculum revision through dedicated time and resources.

Partnership Exemplar C6.1: AI-Savvy Clinician-Educator Joint Appointment

A joint appointee may spend part of the week supporting clinical AI implementation and part of the week teaching simulation, informatics, and/or clinical judgment content. This role helps students learn how AI is used in practice and how nurses remain accountable for safe care.

Joint appointments are among the most effective structural mechanisms for closing the academia-practice divide in AI education. A nurse with joint appointment responsibilities in both a clinical AI role and an academic faculty position brings real-time clinical AI experience directly into the classroom and simulation center. As AI-driven tools continue to evolve in clinical settings, joint appointees create a living bridge between domains — ensuring that what students learn in simulation reflects what graduates will experience in practice (El Arab et al., 2025).

Implementation Considerations

- Establish formal joint appointment agreements with defined time allocation (e.g., 60% clinical and 40% academic responsibilities).
- Prioritize appointments at the intersection of AI and nursing practice, including clinical informatics specialists, simulation educators, quality improvement nurses, and AI safety officers.
- Provide joint appointees with support for clinical currency (continuing education, platform access) and academic productivity scholarship support, and dedicated time for curriculum development.
- Include joint appointees on both institutional AI governance committees and academic curriculum committees.

Conclusion

The NLN Artificial Intelligence (AI) Toolkit provides a practical framework for nursing programs to integrate AI into education in ways that are ethical, intentional, and aligned with nursing values. Rather than prescribing a single pathway, the toolkit is designed as a flexible guide that allows programs to begin where they are, build readiness over time, and adapt implementation to local resources, priorities, and learner needs. As nursing programs move from exploration to implementation, the next step is to use this toolkit as a living guide for action: establish governance, prepare faculty, align curriculum and assessment, build responsible partnerships, and evaluate progress over time. AI should be introduced in ways that are intentional, ethical, and evidence-informed, with clear attention to privacy, equity, transparency, and human oversight. Programs are encouraged to start with manageable pilots, learn from early efforts, refine their approach, and scale what is effective. In doing so, nursing education can lead with confidence, ensuring that the use of AI strengthens learning, supports safe and equitable care, and preserves the professional judgment, accountability, and human connection at the center of nursing.

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AI Toolkit Supplemental Resource List

Standards, Frameworks, and Policy Resources

- American Association of Colleges of Nursing. (2021). *The essentials: Core competencies for professional nursing education.* https://www.aacnnursing.org/Portals/0/PDFs/Publications/Essentials-2021.pdf
- AiPromptsX. (n.d.) *CARE framework*. https://aipromptsx.com/prompts/frameworks/care
- Digital Education Council. (n.d.) *Digital Education Council AI literacy framework.* https://www.digitaleducationcouncil.com/post/digital-education-council-ai-literacy-framework
- Easy AI Beginner. (n.d.*) What is the RISEN framework for ChatGPT? (Role, Input, Steps, Expectation, Narrowing).* https://easyaibeginner.com/risen-framework-ai-prompt-for-chatgpt/#what-is-the-risen-framework-for-chat-gpt-role-input-steps-expectation-narrowing
- Georgetown University Library. (n.d.*) Generative AI resources*. https://guides.library.georgetown.edu/ai/prompts
- Harvard Business Impact. (n.d.) *Are your students ready for AI?* https://hbsp.harvard.edu/inspiring-minds/are-your-students-ready-for-ai
- IBM. (n.d.) *What is GPT?* https://www.ibm.com/think/topics/gpt
- The Joint Commission & Coalition for Health AI. *Responsible use of AI in healthcare.* https://www.jointcommission.org/en-us/knowledge-library/news/2025-09-jc-and-chai-release-initial-guidance-to-support-responsible-ai-adoption
- National Academy of Medicine. (2025). *An artificial intelligence code of conduct for health and medicine: Essential guidance for aligned action.* https://doi.org/10.17226/29087
- National League for Nursing. (2025). Vision Statement: Artificial intelligence (AI) in nursing education. https://www.nln.org/docs/default-source/default-document-library/nln_ai_vision_statement.pdf?sfvrsn=dbb7bef_1
- Voulgaris, N. (n.d.).*Writing effective AI prompts*. https://nvoulgaris.com/writing-effective-ai-prompts/

Professional Development and Webinars

- American Association of Colleges of Nursing. (2025). *2025 AACN Thought Leaders Assembly: Examining the potential of AI to transform nursing education.* https://www.aacnnursing.org/Portals/0/PDFs/Reports/Thought-Leadership/AACN-2025-Thought-Leaders-Assembly-Summary.pdf
- Unbound Medicine. (2025, April 3). *Best practices for AI integration in simulation* [Video]. YouTube. https://www.youtube.com/watch?v=tq3waTCQxkQ
- Unbound Medicine. (2024, October 8). *Beyond the AI hype: A conversation about the possibilities and pitfalls of AI in nursing education* [Video]. YouTube. https://www.youtube.com/watch?v=Zd_u-5PZ9mk
- Unbound Medicine. (2025, October 20). *Elevating education with AI: Practical strategies for nurse educators* [Video]. YouTube. https://www.youtube.com/watch?v=e7nMtNn6Htg
- Unbound Medicine. (2024, January 29). *Generative AI in Nursing Education* [Video]. YouTube. https://www.youtube.com/watch?v=ASEwqRsY_Og

- Unbound Medicine. (2025, December 10). *Leveraging the power of generative AI in designing simulation scenarios* [Video]. YouTube. https://www.youtube.com/watch?v=qWZZABiqVv8
- Unbound Medicine. (2025, February 26). *Unpacking AI ethics in nursing education: A panel discussion* [Video]. YouTube. https://www.youtube.com/watch?v=7EoUfLd86I8

Policy Examples for Syllabus or Institutional Use

- Boise State University generative AI policy: *https://www.boisestate.edu/oit/itgrc/information-technology-guidelines/data-use-guidelines/*
- Duke Center for Teaching and Learning. (2025, August 25*). Artificial intelligence policies: guidelines and considerations*. https://ctl.duke.edu/ai-and-teaching-at-duke-2/artificial-intelligence-policies-in-syllabi-guidelines-and-considerations/
- Hatami, D. (2025, April 3). *Developing your institution's AI policy: Create clear, cohesive guidelines that last*. Harvard Business Impact. https://hbsp.harvard.edu/inspiring-minds/guidelines-effective-ai-policy
- University of London. (2024) *Artificial intelligence (AI) policy.* https://www.london.ac.uk/sites/default/files/artificial-intelligence-policy-uol.pdf

AI Platforms and AI-Assisted Tools

- Atlas: https://chatgpt.com/atlas/
- ChatGPT: https://chatgpt.com/
- Claude: https://claude.com/product/overview
- Copilot: https://copilot.microsoft.com/
- Gemini: https://gemini.google.com/
- Grok: https://grok.com/
- Perplexity AI: https://www.perplexity.ai/
- Perplexity Comet: https://www.perplexity.ai/comet

Additional Useful Articles

These are additional articles that may be useful in addition to articles cited in the toolkit.

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